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THE USE OF FOOD PRESERVATIVES.*

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Inasmuch as the succession of seasons, the intervals between harvests and great distances from sources of supply compel man to store and transport many food products, and since these are more or less perishable, the desirability and the necessity of artificially preserving these foods from decay and from putrefaction are apparent; and certain agents have been used for this purpose from prehistoric times. Common salt, or sodium chlorid, has priority in point of time, and potassium nitrate, or saltpeter, has the sanction of long-continued use, although I am not sure that the unrestricted use of the latter is altogether free from harm. Primitive man, in all probability, learned from observation that meat exposed to the smoke of his campfire did not become putrid so quickly as meat not so treated. Sterilization and canning are of comparatively recent introduction, but now of wide application. Refrigeration finds frequent new adaptations and the machinery employed in securing it has been developed and improved from year to year.

The relatively new science of bacteriology has demonstrated that the processes of decay and of putrefaction are due to the growth and multiplication of low forms of life and that the preservation of foods depends on the exclusion or retardation of the growth of bacteria. The rapid development of chemistry has led to the discovery and inexpensive preparation of a long list of chemical bodies possessed of more or less powerful germicidal properties, and the purveyors of food products have not been slow to utilize these scientific discoveries. Some of these chemicals used in the preservation of foods are, to say the least, questionable in their effects on the life and health of the food consumer. This fact has induced sanitarians to invoke the passage of legal enactments to control and to regulate their employment, and many of the states of the Union now have what are known as pure food laws and have provided officials whose function it is to enforce them. Courts of justice, in the execution of these laws, frequently call in medical men who have given especial attention to these matters and ask from them information concerning the harmfulness or harmlessness of the chemical compounds employed by dealers in foods. In this way it has happened that medical men are frequently asked to serve as experts in deciding questions involved in the administration of the pure food laws. From his knowledge of the human body in health and disease, and of the effects of various chemical compounds on physiologic processes, the medical man is supposed to be qualified above others in giving testimony along these lines.

The questions that may arise legitimately in trials for the violation of the pure food laws are many and varied. In part they are chemical, inasmuch as the nature of the compound employed and the various reactions into which it may enter, when brought into contact with the fluids and tissues of the body, must be comprehended and explained to a jury made up of men who, as a rule, have had no training in chemical science. In part the questions are bacteriologic, for it must be known whether or not the substance has any germicidal properties and, if it has, if it acts on all bacteria alike. Is it effective to the same extent on aërobic and anaërobic germs, and on the relatively harmless and the toxicogenic? Much hinges on this question, as I will attempt to show later. The questions likely to come up also involve physiologic and pathologic knowledge. Food preservatives, if largely used, will be consumed not only by the healthy and robust, but by those with every form of disease, both acute and chronic. The dyspeptic, the neurotic, the diabetic, the nephritic, as well as the healthy man, must be considered in deciding whether or not a given chemical compound should be permitted as a food preservative. The infant and the aged, as well as those in the prime of life, are involved. If formaldehyd is to be permitted as a milk preservative it must be remembered that it will be largely consumed by infants, and not only by healthy infants, but by those suffering from gastrointestinal disturbances; by the dyspeptic and rachitic as well as the vigorous. If salicylic acid is to be used as a beer preservative, it must be borne in mind that it will be consumed not only by the man who takes an occasional glass, but also by the one who is given to frequent and deep potations. The food preservative that receives legal sanction must be harmful to none of these, for it is the duty of the state to protect all alike, and because a man is killing himself by excessive beer drinking is no reason why his death should be hastened by the addition of salicylic acid to his favorite drink.

One question which the expert should always ask himself, even if it be overlooked by both prosecution and defense, may be stated as follows: Is the substance in question a real preservative or only apparently such? If this question could be scientifically answered it would at once settle the claims of a considerable number of the preparations now in use. A true food preservative is a substance which when added to food in the fresh state keeps it in a wholesome condition for a considerable period of time. This is true of common salt, salt-

* Read before the Pathological Society of Philadelphia, 1904.

peter, and of certain constituents of wood smoke. It is too much to expect that preserved food shall be as toothsome, as easily digested and as easily assimilated as the same food in the fresh state, and although this is accomplished with certain foods and with certain preservatives it can hardly be expected in all cases. Bacon is believed to be fully as pleasing to the taste, more easily digested and quite as readily assimilated as fresh pork, but this is not true of corned beef, nor of preserved fruits and vegetables.

A true food preservative must keep the substance to which it is added in a wholesome condition, so that it can be consumed by persons in every physical condition of life without impairment of health or danger to life. It is not the function of a food preservative to impart to the food a deceptive appearance and to make it look better than it actually is. The law takes special cognizance of this point, and plainly forbids all articles of this class, and I am sure that this law is wise. This excludes all meat preservatives that restore the color and fresh appearance to partially decomposed meats. Moreover, it is not the function of a true food preservative to simply preserve the fresh appearance while putrefactive changes go on, at least without marked and sufficient hindrance. To prevent the development of those bacteria that produce odoriferous substances while the more toxic bacteria that develop no telltale odor continue to grow and multiply does not comply with the requirements demanded by a food preservative that asks for legal sanction. It follows from this that we should be informed not only in a general way concerning the antiseptic properties of the substances in question, but we must know something of its specific action on toxicogenic as well as non-toxicogenic bacteria. To retard the multiplication of the lactic acid bacillus and thus to prevent the souring of milk, while colon bacilli continue to multiply uninterruptedly, is not the function of a true food preservative. Such food preservatives are wisely condemned by legal enactment. They take down the danger signal but do not remove the obstruction in the road.

Some esthetic individual might contend that the red lights along the street do not look well on a dark night, so he removes the lanterns, but leaves the stone piles and open ditches to wreck vehicles and endanger lives. Should such a man be considered a benefactor to his race, or a dangerous lunatic?

From experiments made in my laboratory, I can state that the addition of formaldehyd to milk in quantities varying from 1:25,000 to 1:50,000 retards the growth of the lactic acid bacillus and thus delays the souring of milk, while it has but little effect on the multiplication of colon and typhoid bacilli. The most ignorant mother knows enough not to give her babe sour milk, but even the most intelligent mother might give the formaldehyd milk, laden with its poison-producing bacteria, because, so far as she can judge by appearance and taste, it is all right. The man who adds formaldehyd to his milk takes down the danger signal but does not remove the danger. Is he a philanthropist or is he guilty of manslaughter when the child fed on this milk dies? In cases of this kind, it matters not whether the preservative is directly, and in and of itself, harmful to the human body or not, its use should be prohibited. I am by no means sure that formaldehyd in the quantities in which it is used in milk is, in and of itself, of great harm to the body of man, but I am convinced that its use in milk, especially in that fed to infants, is very properly condemned by the laws of many states. Bacteriologists have found that sodium sulphite is possessed of but feeble germicidal properties, and yet we know that practically it does preserve the color and delay the development of putrefactive odors in meat for a relatively long time. It is more than probable that a careful investigation of this apparent contradiction will show that this substance, like formaldehyd, retards the growth of the non-toxicogenic rather than of the toxicogenic bacteria. However, this point deserves patient and prolonged investigation, and the laboratories of our agricultural colleges might carry out many series of experiments along this line, varying the conditions from time to time, taking into consideration the character of the food employed, the species of bacteria present, the temperature, time, etc. There is opportunity here for research that may prove not only instructive but of practical value.

So-called preservatives that remove the danger signal and leave the danger untouched should be condemned whether it can be shown that the substance employed is a poison or not. Even the most inert body belonging to this class should not be used, and certainly not in food fed to children, so large a proportion of whom die from milk poisoning.

Inquiry into the effect of the substance in question on the digestive fluids and processes is legitimate in considering the claims of any food preservative, and in making this inquiry it must not be forgotten that the preservative, if permitted, will be taken by those with every degree of digestive impairment as well as by the most vigorous. Neutralization of the free hydrochloric acid of the gastric juice is a matter of no little importance, as every physician who has made many analyses of gastric contents can appreciate, and the action of the substance on the digestive enzymes is probably of still greater importance. The digestive organs are the laboratories in which the nutritive parts of the food are fitted for absorption and assimilation; and interference with the normal processes of the alimentary canal mean, sooner or later, disaster to every organ of the body. The most general and superficial knowledge of chemistry suffices to indicate that sodium sulphite will neutralize the free hydrochloric acid of the stomach, and a simple calculation, based on the amount of this substance which may be found in the food, will show the volume of acid that may be neutralized. It matters not whether the acid radicle of the sodium sulphite is split off in the stomach as the anhydrid or immediately combines with water to form sulphurous acid, the effect is practically the same. I was somewhat startled recently, however, to learn from the testimony of an expert that the stomach is a tank always filled with free oxygen, and that this immediately converts the sodium sulphite into sodium sulphate, which, as all must admit, in the quantity employed can be of little effect, even on the dyspeptic. The investigation of the effects of preservatives on the digestive processes should be made outside the body, where they can be exactly determined. They should be made with each ferment and then with combinations. Numerous studies of this kind have been made with some food preservatives, for instance with formaldehyd, and it seems to be well established that this substance markedly interferes with the action of some of the digestive enzymes. The defense frequently attempts to belittle testimony showing the retardation of the digestive processes by the substance in question, and the expert is asked what harm

it will do to have some of the acid of the gastric juice neutralized by the little sodium sulphite in a Hamburg steak eaten once a week? This question is an attempt to mislead and to convey to the jury the impression that the matter is of but trifling import and that the expert is trying to build a fortress of straws. However, if a man has sodium sulphite in his meat, alum in his bread, and formaldehyd in his milk, it may seriously be questioned if his gastric juice, or what little he has left of it, will suffice to convert the proteids of his food into peptones.

The question of the possible poisonous action of the preservative must always be considered and is frequently of primary importance. There seems to be great diversity of opinion among medical men concerning what constitutes a poison. Some appear to think that before a chemical compound can be classified as a poison it must be capable of causing death in the quantities used in food, or that at least it must visibly and grossly disturb the health of man in a few hours. If it fails to do this it is not a poison, or at least in the quantity employed it should not be so designated. I have regarded this question quite differently and I will attempt to give, in a few words, my ideas on this point. The bodies of animals, including man, are made up of cells, that are alive and perform duties, the proper performance of which is necessary to the well-being of the whole of the individual. These cells are essentially chemical compounds and those substances which combine with these cells chemically in such a way as to cause their destruction or to render the performance of their normal functions impossible are poisons. Therefore, a poison may be defined as a substance that destroys or impairs cell function by virtue of its chemical constitution. The cells of the different organs vary more or less in chemical composition and consequently a compound may react with a liver cell more readily than it does with a muscle, bone, or nerve cell. In this way poisons are, to a certain extent, selective in their effects, their selective action being dependent on the readiness with which they react with the chemical constituents of different cells. A substance that combines with and consequently interrupts the function of the cells of the respiratory center in the brain causes the speedy death of the individual, while those substances that destroy blood, liver or kidney cells are slow poisons inasmuch as the life of the individual may survive the destruction of a large number of these cells, but those of one class are just as truly poisons as those of the other. Potassium chlorate reacts with the hemoglobin of the blood, converting it into methemoglobin, and if the number of red blood cells destroyed is sufficiently great to impair the action of the other cells, especially those in the vital centers of the brain, death of the individual occurs. On the other hand, if the number of injured blood cells be not so great, life is not destroyed but health is impaired.

Chloroform, ether and other anesthetics combine with and temporarily paralyze the nerves of sensation. Ethyl alcohol, besides its effects on the nervous system, leads to alterations in hepatic cells, and cirrhotic changes are induced; while methyl alcohol finds its special affinities in the ganglion centers of the retina and in the optic nerve. Many of the metals have their most marked effect on the renal cells and some have a special action, apparently, on connective tissue cells. In the pathologic laboratory, potassium bichromate is employed on animals for the specific purpose of developing nephritis. There are other illustrations, but these, I hope, will suffice to make clear my position. All poisons are such because they destroy or impair the action of certain cells of the body and the immediate effect on the life of the individual depends on the kind and number of cells put out of commission.

The question of dose can not be left out of consideration in the study of poisons, because a certain relatively small number of cells, in most organs of the body at least, can be destroyed without any appreciable result. Moreover, the quantity or dose given determines, to some extent, the cells affected; thus the introduction of from 5 to 10 grams of sodium sulphite into the stomach of a rabbit at one dose causes death in a few minutes, while the administration of the same substance in much smaller quantities just as certainly kills but a longer time is required. When a large single dose is given, some of the unchanged sulphite reaches the brain, and the cells of the respiratory center are so injured that respiration stops and death occurs almost instantaneously.

When smaller doses are given all the sulphite is used up before it reaches the brain, especially in the walls of the stomach and in the blood. Digestion and assimilation are impaired, emaciation follows and in time death ends the process. Is not sodium sulphite just as truly a poison in one case as in the other? But it is asked, is not nearly everything a poison if given in sufficient quantity? and the expert is frequently asked if common salt is not a poison in large doses; it may kill, but it is not a poison. The injection of concentrated solutions of salt or of sugar, or even of distilled water directly into the blood may kill by altering the specific gravity of the plasma, but these are not poisons. If the stomach of a rabbit is filled with a saturated solution of common salt speedy death results, but this is due to physical causes and to the absorption of water, and is not due to the chemical combination of salt with the cells of the body. Broken glass or splinters of steel taken into the stomach may kill the individual, and molten metal poured into the throat would have a like effect, but these are not poisons, because their injurious effects are due to physical and not to chemical causes.

Should the fact that a substance is a poison prohibit its use as a food preservative? Admit that a substance is a poison and it must also be admitted that its use as a food, or in a food, must be sanctioned by long-continued custom or must be regulated by law. I think that this is the holding of eminent jurists in all parts of the civilized world. I believe that the higher courts of Pennsylvania have held that it is sufficient to show that the substance is a poison and that it is not necessary to show that the quantities employed are dangerous, and this decision is certainly a wise one. In cases of trial for murder by the administration of poison, it has been generally held that it is not necessary for the chemist to recover from the body a poisonous dose, but simply to show the presence of poison. People in general are not legally qualified to administer poison to others. Members of the medical profession only are legally qualified for this purpose, and it is for this reason, in part at least, that the state assumes the right to specify within certain limits the qualifications of the physician.

If sodium sulphite is a poison, and if the only safeguard in its use as a food preservative is in the amount added to the food, shall this be left to the vendor, who is ignorant of the chemistry and toxicology of the compound and whose sole object is to make his goods look

more attractive to the buyer? If this compound is to be legally sanctioned as a food preservative, the law must determine in what quantities it may be employed and it must select qualified men to mix the preservative with the food. The statutes specify the qualifications of the physician who prescribes and of the pharmacist who prepares this and other poisons when given as medicines, and is it not of more importance that the addition of poisons to our daily foods should be conducted under similar safeguards? Medical experts may differ in opinion concerning the classification of a given compound as a poison, but if the court be convinced that it is a poison, and that the possibility of doing harm with it depends on dosage, it is not probable that its usage will receive legal sanction. Poisons should be sold only under strict legal restrictions; the experience of all ages has demonstrated the wisdom of this. The cases of poisoning with chromate of lead, so admirably worked up some years ago by Stewart of Philadelphia, will illustrate what harm the cupidity of the vendor and the ignorance of the user may accomplish. The fact that the substance in question has been largely employed in medicine, and sometimes with beneficial results, is often brought out in court. In my opinion, testimony of this kind is of but little value and is capable of being misinterpreted. The physician, in order to cure a syphilitic lesion, very properly takes the risk of doing harm to the kidneys by the administration of mercury, but this does not indicate that mercurial compounds are harmless or that they may properly be used as food preservatives. This point leads to such absurdities that I am ashamed to pursue it further, and yet in two cases tried in Pennsylvania recently medical men have used it in defense of food preservatives. Along the same line is the question of poisonous dose, and the expert finds in some medical book that the medicinal dose is much greater than the amount one would take at a meal, or in one day, or possibly in one week. In regard to this point, it is only necessary to state that there is probably no poisonous drug that has been in use for 10 years or longer for which you can not find in some book the medicinal dose given at a figure considerably beyond the limit of safety.

There is another line of testimony sometimes given that seems to me to be of questionable value; an expert testifies that foods containing a certain preservative have been eaten by men in Alaska or in some other place remote from sources of food supply without recognizable harm. Men so situated must eat what they can get; but here at home we are not driven to such a choice. Men in remote places have eaten dogs and have pronounced the repast enjoyable, palatable and nutritious, but this would hardly justify a butcher in sending a canine tenderloin when a beefsteak had been ordered.

The source of one's knowledge concerning the action of poisons is a matter deserving consideration. Lately there has been a tendency on the part of some to question toxicologic knowledge gained by animal experimentation and to offer instead observations of the effects on man. One expert has tested the action of a substance on the lower animals, which he has fed for a certain time and which he has then killed, either by the continued administration of the drug or otherwise, and after death he has made careful macroscopic and microscopic studies of the different organs. From these studies, he has arrived at certain conclusions. The opposing expert states that he has prescribed the substance in question for malaria or for some other disease to a large number of people and without injury, possibly with benefit. Which kind of testimony is the more scientific and valuable? We will suppose that the action of potassium bichromate is in question. I take this substance because it has not, so far as I know, been used as a food preservative, although a more poisonous chromate, that of lead, has been employed in Philadelphia as a food adulterant. One man testifies that, following the method of Gunzberg, he has prescribed the bichromate to his syphilitic patients and that it has done them no harm. Another says that he has tested the action of this substance on dogs and that he finds it induces certain distinct lesions, especially in the kidneys. Which line of evidence is the more satisfactory, and, after hearing both, to which shall we give the greater weight in coming to a conclusion concerning the action of the bichromate? For one, I should not long hesitate in coming to a decision, and I leave others to decide for themselves, but while they are doing so I beg leave to ask a few questions. Which, the syphilitic or the dog, was in health to start with? To which has the substance been administered most certainly in the quantities claimed? Which has been more completely under the control and observation of the administrator? and, when both die, in which is the cause of death most unquestionable? Moreover, suppose that the kidney lesions are found in both, is it not true that there might be grave and honest doubt as to what caused them in the man? The conditions under which most patients live are too complex for them to serve in our observations concerning the actions of poisons. Dr. Wiley, at Washington, is now testing the action of certain food preservatives and adulterants on men, and, inasmuch as these men are under his control and have their lives regulated by his rules, we may be sure that valuable information will be secured, but toxicologic experiments on men under the most favorable conditions will need to be supplemented by animal experiments. The microscopic lesions induced in the organs can be ascertained in no other way. We must be able to kill the animals after they have received definite quantities of the substance and to study their tissues, both macroscopically and microscopically.

In conclusion, I will state what I believe should be the essentials of a substance before its employment as a food preservative should receive legal sanction.

1. It must be a real preservative, keeping the food in a wholesome condition and not merely retaining the appearance of freshness while bacterial changes continue.

2. In the largest quantities used, it must not materially impair any of the digestive processes.

3. It must not be a cell poison, or if a cell poison in any amount, it must be added to foods only by persons qualified by special training and officially authorized, and foods containing these substances must be plainly labeled and the kind and amount of the preservative used must be made known not only to the buyer but to each consumer.

To Prevent the Tramp Evil.—A striking illustration of the success of the work test on ridding country towns of tramps is furnished by the town of Sherborn, Mass., says the *Medical Times*. Sherborn had 1,446 inhabitants, and during one year it lodged and fed at the town almshouse 1,844 tramps. The overseers of the poor decided to employ tramps in labor for the almshouse and in chopping wood, with the result that in four years there was a reduction from 1,844 to 31.

THE EFFECTS OF GONORRHEA ON THE FEMALE GENERATIVE ORGANS.*

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The effect of gonorrhea on the female generative organs has been so destructive that no successful contradiction is feared when the belief is expressed that no disease in modern times has caused so much indirect mortality, mutilation and suffering, both mental and physical, as gonorrhea; and this association can hardly spend its time and influence in any more valuable and humanitarian direction, than in establishing the facts in regard to its ravages, and in suggesting methods of limiting or preventing them in future.

Acute gonococcic infection of the vulva and vagina may be compared with acute gonorrhea of the anterior portion of the urethra in the male; both are frequently cured before any ascending infection occurs, both are frequently incurable in their chronic or latent stages, when the gonococcus has found lodgment in the deeper structures.

The chief danger of gonorrhea in women is stated by all the text books on gynecology to be the infection of the uterus and of the uterine appendages. Gonorrhea is the chief source of salpingitis and pelvic peritonitis, though we occasionally meet with these conditions as a direct result of endometritis caused by puerperal sepsis, but these latter cases are now admitted by gynecologists to be the exception, while as a rule these cases are caused by the disease under consideration.

Morrow, to whom we are indebted for many statistics, states in the preface of his valuable book, on "Social Diseases and Marriage," that "within the past two decades no coccus has so grown in significance and pathogenic importance as the coccus of Neisser. Of especial interest, in connection with the objects of this study, is the important rôle of the gonococcus in determining serious pelvic disease in women. Modern science has taught us that, in view of its extensive prevalence, its conservation of virulence, after apparent cure, and its tendency to invade the uterus and adnexa, with results often dangerous to life, and with destruction of the reproductive capacity of the woman, gonorrhea overshadows syphilis in importance as a social peril."

While Morrow admits that "no disease has such a murderous influence on the offspring as syphilis," he also states that "no disease has such a destructive influence on the health and procreative function of woman, as gonorrhea."

While syphilis is a most potent factor in the destruction of the unborn child, gonorrhea by its much greater frequency is a vastly more potent factor in the production of involuntary race suicide, by the sterility induced in both sexes; but much more frequently in women, on account of the ascending destructive and incurable infection of the tubes and ovaries.

Bland-Sutton of London is correct when he states that gonorrhea is the chief cause of the sterility of the prostitute class. A gonorrheal salpingitis, whether it goes on to suppuration, and the formation of pus tubes and ovarian abscesses or not, usually destroys the epithelial lining of the tubes, and so cripples the ovary as to render conception almost impossible. Sterility is then a very common legacy bequeathed to the female victim of this disease.

The most pathetic part of the history of this subject relates to the frequent introduction of this disease into married life.

"The Report of the Committee of Seven on the Prophylaxis of Venereal Diseases in New York City would indicate," says Morrow, "that nearly 30 per cent. of all venereal infections occurring in women, in private practice in that city, are communicated by their husbands."

While venereal diseases cause more deaths and deplete the population by causing abortion and preventing conception more than any other known disease or condition, this subject is largely ignored by sanitary bureaus in their registration of contagious diseases.

And yet it is generally admitted by recent writers that gonorrhea is the most widespread and universal of all diseases. Some writers claim that 90 per cent. (the lowest estimate I have seen is 75 per cent.) of the male population of our cities have had gonorrhea some time during their lives, while only from 5 to 18 per cent. have contracted syphilis.

Noeggerath has stated that of every thousand men married in New York, eight hundred have had gonorrhea, from which the great majority of their wives have been infected. And it was largely on this evidence that he based his statements in his most remarkable and startling paper read before the American Gynecological Society in 1876 in regard to the effects of latent gonorrhea in the causation of abortion and sterility. Morrow states that his own observation at the New York Hospital, extending over a period of several years, would indicate that fully 70 per cent. of all women who come there for treatment were respectable married women who had been infected by their husbands.

This subject has been studied by so few investigators of recognized authority, in comparison with other great evils which threaten the social, moral and physical life of the nation, that I feel that the presentation of the latest crystallized views and conclusions of well-known workers and authors on genito-urinary subjects ought to arouse us and awaken our interest in this great question. The work of any real value in this department has all been done in the last twenty-five years, since the discovery of Neisser, in 1879, which made it possible for us to say that no gonorrhea existed without the presence of the gonococcus, and that gonorrhea continued to exist so long as that germ could be found in any of the deep recesses of the body.

Thus Morrow, in his great book before referred to, in comparing the significance of gonorrhea and syphilis as social dangers, says, "In the light of our present knowledge respecting the pathologic significance of gonorrhea, it is a matter of surprise that its important relations with marriage, until recent times, have been practically ignored."

He declares that gonorrhea "must be considered quite as formidable a social plague as syphilis," and again, in speaking of the murderous influence of syphilis on the offspring, says "the no less potent agency of gonorrhea as a factor of depopulation through its inhibitory influence on the conceptional capacity is by no means adequately appreciated." The introduction of gonorrhea into married life entails consequences infinitely more disastrous to the health and the life of the mother than syphilis. She may be rendered a life-long victim and her hope of children absolutely extinguished. And again he says, "woman becomes irrevocably sterile, not to speak

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of the danger which in many instances can only be averted by the sacrifice of her reproductive organs." We have authority for the statement that, while we are accustomed to look on syphilis as the most active cause of depopulation, gonorrhea is in reality a much more powerful factor.

Janet, in discussing "Social defense Against the Venereal Peril," only two years ago says, "gonorrhea with tuberculosis, perhaps more than tuberculosis, is the great pest of our age. If we compare, from a social point of view, the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 to 1, not only from the standpoint of the number of persons attacked but also from the standpoint of the gravity of the lesions and their perpetuity. Gonorrhea modifies, in a manner often permanent, the genital organs of patients, renders them infinitely dangerous for the women they approach, causes all the metrites and annexial inflammation which today give to the surgeons three-quarters of their work, and conducts finally both men and women to sterility."

"The predominance of gonorrhea as a cause of depopulation is not surprising in view of the fact that it primarily and specifically affects the organs of generation"; though some writers declare that "gonorrhea is a general toxemic infection."

After giving due weight to all the generally admitted causes which prevent conception, we are forced to the conclusion of some modern writers, "that there must remain a vast contingent of sterile marriages which are caused directly and solely by gonorrheal infection."

Noeggerath, as far back as 1876, declared his belief that 50 per cent. of female sterility was caused by gonorrhea. In his paper above referred to, he reports, after very careful study of 81 women affected by gonorrhea, that 49 were absolutely sterile, and that the remaining 32 women bore only 39 children.

Neisser attributes more than 45 per cent. of sterility in women to the effects of gonorrhea. Lier-Ascher found that out of 227 women 121 were sterile because of gonorrhea. Kehren found that in 96 sterile marriages 30 per cent. were due to the absence of spermatozoa in the husband, while in 45 per cent. there were complications causd by gonorrhea.

Gruenwald, Kammera and Crolax report 53 per cent., 83 per cent. and 40 per cent. of endometritis, mesometritis and perimetritis, all of gonorrheal origin, as causes of sterility in the female, while Williams insists that 73 per cent. of all abortions are due to endometritis, presumably of gonorrheal origin. While conception is known to be quite possible during the existence of a vaginal or cervical gonorrhea, and gestation and parturition may proceed and terminate normally, as far as the mother is concerned, but causing 30 per cent. of the blindness in the world, because of gonorrheal ophthalmia. The way seems to be open after parturition, through slight traumatism in the endometrium, for ascent of the infection to the tubes and ovaries.

One author states it very clearly in the following words: "After accouchement the tissues of the genital organs are in a peculiar state of inhibition and of infiltration. The uterine orifices are enlarged, the mucous membrane desquamated in part, but the glandular cul-de-sacs perish and offer to the gonococcus a favorable soil for its proliferation."

We have abundant testimony that specific infection frequently ascends to the pelvic organs after parturition, when this infection only existed below the internal os uteri previous to labor. This infection may, and nearly always does, result in future sterility, so that this germ has more to its account than would be implied by the mere term sterility. Many of its social victims have proven their conceptional capacity by giving birth to one child, but remain semi-invalids ever after as a result of the ascended infection. "It thus happens," says Morrow, "that the aptitude of a gonorrheic woman for conception is often extinguished by the first pregnancy, the one child representing the sum total of her reproductive energy." The sterility of the gonorrheic woman is thus relative rather than absolute; it is, in the expressive German phrase, *"ein kind sterilität,* a one-child sterility.

The race suicide effect of gonorrhea does not end in the prevention of conception or in a one-child sterility, but has a much more powerful influence in the production of abortions than has heretofore been attributed to it.

Savage asserts that as many abortions are caused by gonorrhea as by syphilis. Noeggerath states that of 53 women known by him to be suffering from the effects of latent gonorrhea 19 aborted. Fruhinsholz found that in 101 pregnancies occurring in gonorrheic women 71 went to full time, 23 aborted and 7 were delivered prematurely. Another report of 201 pregnancies, complicated by gonorrhea, states that 161 went to full term, 36 were prematurely delivered and 4 aborted.

The causes of ectopic gestation have never been clearly set forth in our text-books, but it is claimed by recent writers on social diseases that gonorrheal salpingitis plays an important rôle in the etiology of this condition; modifications in the epithelial lining of tubes occur in mildly latent cases, which may arrest the descent of the ovum to its natural bed in the uterus, thus becoming directly responsible for the tubal pregnancy. The "mutilation" of women who suffer from gonorrheal infection of the uterine appendages is simply appalling when we consider the great and increasing number of surgical operations made necessary by their otherwise incurable infections. In 1901 this association appointed a special committee "for the collective investigation of statistics on the prominence and dangers of gonorrhea."

In answer to its question, "What is the proportion of cases of pelvic inflammation coming under your care which are attributable to gonorrheal infection?" sent to many leading gynecologists in this country and in Europe, Humiston replied that 90 per cent. of his cases were attributable to this cause, some of them, however, being of mixed infection. Price answered that in over 1,000 abdominal sections for pelvic inflammation 95 per cent. were attributable to gonorrhea, and that in 95 per cent. of these cases the history was reliable and clear. Pozzi and Frederick stated their experience as 75 per cent. The general average of all statistics collected was 40 per cent.

It is quite possible that the difference noted in some, by the report, may be on account of a reliance on macroscopic instead of microscopic evidence of this specific infection. The statements of patients are as unreliable as their clinical history. While the presence of the gonococcus would be affirmative, its absence or a failure to find it in the deeper located infections would not always be negative proof.

Peterson says "the more the disease is studied in women and the greater the improvement in bacteriology the higher is to be found the percentage."

We often meet the statement that more than half the

abdominal operations performed in the world to-day are required on account of the infections and adhesions and pus collections due to gonorrhea, but I think we will all be surprised when the statement is forced on us that a great majority of them are from this cause; according to Humiston and Price, from 90 to 95 per cent.

Mann of Buffalo says that in his experience just about all of his "pus tube operations" are required on account of gonorrheal infections, and, as tubal infections arise from specific endometritis, he thinks it necessary for the complete cure of the patient to remove the uterus also. Many others hold this opinion. They see many dangers ahead for all women who possess a gonorrheal uterus, after infected appendages have been removed. Curettings and antiseptic irrigations, while they occasionally eradicate all the gonococci, generally do not, and relapses and contagions recur, greatly to the surprise and sometimes to the mortification of the patients, who believed themselves cured.

The great number of women operated on for the removal of gonorrheal appendages, pus collections, inflammatory adhesions, enlargement and displacement does not by any means represent the amount of invalidism and suffering caused by this infection.

In the above quoted statistics only the number actually "mutilated" by the surgeons are mentioned, and no account is taken of the large number of infected women who for various reasons are not subjected to operations and continue under the care of the family physician, dragging out a miserable existence of semi-invalidism, subject to painful or difficult menstruation, no longer able to walk freely, condemned to pass their days of suffering in a reclining position, and after years, it may be, of this suffering, worn out and desperate, apply to the surgeon, who, by the sacrifice of the uterus, tubes and ovaries, renders their existence possible by making them castrated women.

What disease have we to treat against which can be brought such an array of charges and about which so little is being done to prevent or eradicate it?

I know of no statistics of the mortality arising from gonorrheal infection of the female organs of generation, but we can obtain an approximate idea when we consider the great number of major surgical operations performed on its account, the number of abortions caused by it, and the untold number of conceptions prevented by the disastrous results of such infections.

There is little doubt in my mind that, at a most conservative estimate, half a million prostitutes are living in houses of ill-fame in our large cities and I am not sure a million would not be nearer correct; writers on this subject generally estimate as many women living lives of easy virtue outside as inside of the disreputable houses. In our country alone we have, then, a million and a half, if not twice that number, who have or are liable to have gonorrhea any day, with all the possible consequences above referred to.

The effects of the introduction of gonorrhea into married life have already been spoken of.

It is estimated that from 40,000 to 50,000 prostitutes die annually, and that their places are immediately filled by new recruits. While much of this mortality may be due to the results of dissipation and natural causes, at least 30 per cent of this mortality is due to the direct effects of gonorrhea.

It is estimated that 110,000 deaths occur annually from tuberculosis in our country, 107,000 from pneumonia and 43,000 from typhoid fever. While there are no statistical reports of investigations of the mortality due to the infections and ravages of gonorrhea on the female generative organs. I have little doubt, if it can be ascertained, that the race suicide arising, directly and indirectly, from this disease would equal the mortality of any of the three diseases mentioned, and I am not sure that it would not exceed them all combined; if we take into consideration the depopulation caused by the one-child sterility, and also the absolute sterility produced by gonorrheal inflammation of the uterus and its appendages.

It is customary to include the death of the child when comparing the maternal mortality of craniotomy with that of cesarean section. Thus, if 75 or 25 per cent. of maternal deaths occurred after craniotomy, the mortality of the operation would be stated as 175 or 125 per cent., as the case might be. So, in speaking of the mortality of the effects of gonorrhea on the female generative organs, one might on the same principle include that indefinite multitude of children which would have been born but for the inhibitory effects of the gonococcus on the female conceptional capacity.

As the subdivision of this subject assigned to me only includes the effects of gonorrhea on the female organs of generation, I am admonished that I can not include in my paper a discussion of the indefinite persistency of this infection in its latent or chronic stages, of its power of recurrence after apparent cure, of our responsibility in authorizing matrimony, and the possible remedy for all the troubles following on the trail of this, the greatest plague of our century.

PURULENT CONJUNCTIVITIS AND BLINDNESS.*

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No greater subject could be found for the pencil of the artist than the tragedy of the young mother who, just out of child-bed, brings into one of our city clinics her first-born infant, already blind for life through ophthalmia neonatorum, to find out what can be done for the eyes that "were so bright when it was born." The mere surface facts are dark enough without the black background which the physician also sees, the hideous cause of the affliction and the physical suffering and wreck that are impending in her own life. Because I have looked on this picture and have been compelled to crush the young mother with but a fraction of the terrible truth, I am glad to join in any effort to render less frequent the repetitions of this tragedy.

Not all purulent conjunctivitis of the newborn is caused by the gonococcus. Guerola[1] reported a series of 25 cases, in all of which he found the gonococcus, although sometimes associated with other bacteria. But most students of the subject have had quite a different experience. Alt[2] found the gonococcus in but 9 out of 14 cases. Groenouw,[3] in 100 cases of ophthalmia of the newborn, found the gonococcus in 41. He also found the pneumococcus, the white and the yellow staphylococcus, the colon bacillus, and occasionally other

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Annales d'Ophth., November, 1900.
2. Amer. Jour. of Ophth., April, 1901.
3. Graefe's Archiv f. Ophth., vol. III, No. 1.

bacteria. Standish, in a series of 92 cases reported to the Section on Ophthalmology, found the gonococcus present in but 64. It is certain that many cases of ophthalmia neonatorum are not caused by the gonococcus. One is not justified in assuming from the presence of purulent ophthalmia in the infant a gonococcus infection.

But, on the other hand, nearly all the cases of such ophthalmia which cause blindness are due to this organism. Groenouw thinks that failure to discover the gonococcus by one careful examination justifies a positive favorable prognosis. Standish mentions only one case of corneal ulceration in purulent conjunctivitis not due to the gonococcus. Many bacteria can cause conjunctival inflammation in the newborn, but the danger of blindness is chiefly or wholly from this one.

The frequency with which it causes blindness can not be very closely estimated; but it is the most common cause of life-long blindness, even in this country. Various statistics seem to indicate that in continental Europe fully 30 per cent. of all cases found in schools and asylums for the blind have been brought there from the effects of this disease. No adequate statistics are available for this country, but it is here very much less frequent. Such statistics as I was able to gather a few years ago[4] seem to indicate that the proportion blind from this cause in America is probably half as great as in Europe—from 15 to 18 per cent.

But the true significance of these figures only appears when we bear in mind that blindness from this cause is almost entirely preventable. In the first place, ophthalmia neonatorum may be prevented. In the report above referred to I obtained from the records of the largest lying-in hospitals in Philadelphia statistics regarding 4,956 deliveries. Among these children there occurred 10 cases of ophthalmia neonatorum, and but one eye was permanently damaged. Of the above cases, only 802 were subjected to prophylactic treatment directed to the eye, other than careful cleansing. The technic employed in the cleansing of the birth canal by the different obstetricians, under whose care the deliveries took place, was not identical throughout the series. But it was good in all cases.

Clean midwifery will greatly diminish the number of cases of blindness from ophthalmia neonatorum; still, this alone will not entirely prevent it. Special prophylactic local measures are required to disinfect the eyes in which infective material may have found lodgment. These measures should be resorted to whenever it has been found by microscopic investigation, or whenever there is much reason to suspect that the vagina harbors the gonococcus. The oldest, best-established procedure is the so-called Credé method. This is to let a single drop, or two, of a 2 per cent. solution of silver nitrate fall from a glass rod on the cornea, while the lids are held well apart, and to let this solution run thence into all parts of the conjunctival sac without any additional manipulation of the lids. Rubbing of the lids at the time probably increases the resulting irritation without adding to the efficiency of the method. Great care should be exercised not to injure the cornea.

The efficiency of the Credé method is indicated by the statistics of Leopold,[5] who reports 2,146 deliveries, with but 3 cases of purulent conjunctivitis, although by microscopic evidence 98 and by clinical evidence 200 of the women had gonorrhea. The disadvantages of the Credé method are that it causes irritation and even a sharp attack of inflammation in some eyes that would otherwise escape any inflammatory symptoms; in very rare cases it is followed by conjunctival hemorrhages which have even been fatal. It is probable that such hemorrhage only occurs in peculiarly predisposed individuals, but there seems to be nothing by which such a predisposition can be previously recognized.

On account of these disadvantages it would be an important gain if one of the less irritant silver salts could be substituted for the nitrate. The prospect of being able to do this is very promising. Numerous observers have experimented with these organic silver salts, and their reported experience seems almost uniformly favorable. Such trials should be continued, and the results observed and carefully reported; but until we have had more experience with these salts they can not be regarded with the same confidence as the 2 per cent. solution of silver nitrate.

Even when, because of the neglect or inefficiency of prophylactic measures, purulent conjunctivitis occurs, careful treatment commenced before the cornea has become visibly involved will almost invariably prevent blindness. Not invariably, for a few cases have been reported, as those by Randall,[6] Würdemann[7] and Hubbell,[8] which went on to blindness in spite of the most careful and efficient treatment. In these cases, however, some constitutional factor entered and made the corneal disease progressive in spite of the cure of the conjunctivitis. In nearly all cases early, efficient treatment will save good vision. On this account the laity and the medical profession should be thoroughly educated on the subject; and the laws adopted in some states providing for compulsory notification in all cases of inflammation about the eyes in infants are to be commended.

The treatment required to prevent blindness is the frequent cleansing of the eye without injury to the cornea. The washing away of the discharge may be required every hour, or even more frequently; any sterile, non-irritant solution, such as boric acid, physiologic salt solution, weak potassium permanganate or organic silver salt solutions, may be employed.

Especial care may be required to keep clean the corneal margin where the fold of swollen conjunctiva overhangs it. This is the point at which corneal infection is most likely to occur. Cleansing must be accomplished wholly by currents of fluid, not by coarser mechanical means, and it may be supplemented by applications to the everted lids of stronger solutions of silver salts, such as silver nitrate, 4 or 5 per cent., applied not more frequently than once a day, and often at longer intervals. Protargol or argyrol, from 20 to 30 per cent., may be applied from two to six times a day; but faith must not be placed in these applications to the neglect of the frequent thorough cleansing.

For purulent conjunctivitis in the adult the most important prophylactic measure is education. More careful treatment of the disease when it has arisen may somewhat diminish the cases of blindness caused by it, but only a more general appreciation of the real dangers of gonorrhea can greatly influence the number of eyes lost by this disease. It should not be forgotten that besides wives and children, others may suffer from the disease innocently acquired. I have seen two nurses entirely blind in both eyes from this cause.

4. Trans. Amer. Ophth. Soc., 1898.
5. Berliner klin. Woch., Aug. 18, 1902.
6. Trans. Section on Ophth., A. M. A., 1903, p. 303.
7. Annals of Ophth., January, 1896.
8. Trans. Amer. Ophth. Soc., 1903.

As to legislation to prevent blindness from purulent conjunctivitis, two points seem worthy of attention:

First. Social conditions that favor or oppose the spread of gonorrhea are more important than any measures aimed directly at purulent conjunctivitis.

Second. Gonorrhea is a malignant contagious disease, and should be publicly recognized and dealt with as such in all its clinical manifestations.

BIRTHRATE AND DECREASE IN POPULATION AS AFFECTED BY SYPHILIS AND GONORRHEA.*

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In discussing the relation of venereal diseases to the state, there is but little to be said regarding the menace these diseases constitute to the social and financial stability of the state, or regarding their effect on the future of the race, that has not already been said. The medical profession, the most familiar with this scourge which threatens all our avenues of prosperity, has yet to be aroused to the importance which the subject demands.

We are accustomed, and rightly, to point to the great progress which with giant strides has been carrying us forward in seeking out and in preventing many of the pestilential diseases that annually decimated our population; with a justifiable pride we have asked the world to see the suffering assuaged and the lives preserved by modern methods of surgery. The laity has joined us in smiting the great white plague until we have reduced the mortality nearly one-half in the last two decades. Yet this pestilence—a greater menace to the human family, treading with stealthy step at midnight, and with prurient mean seeking to cover with the habiliment of modesty its hideous crimes of destruction of social order, and of the life of all classes of citizens, born and unborn—cries out with holy horror that the mysteries which have for ages stood in the shadow of this chaste and virtuous goddess of modesty, shall never be exposed to the light of scientific truth.

Because of the indifferent attitude of a profession, whose attention is absorbed by so many avenues of investigation, by which it is pressing forward its philanthropic missions, we are without any statistics of the actual number of cases existing at any one time, of the mortality resulting therefrom, or of the crippling of industries by the loss of time incurred by reason of the disabilities caused by these diseases, to say nothing of the social disorganization it produces.

To arouse the profession to the importance attached to this subject, and to the responsibility resting on it, as well as to devise the wisest methods of treating the subject in all its relations to the individual, the profession, the public and the state, it was recommended last year that a national meeting (call it a congress or what you please) be held, in which an effort should be made to solve the whole matter. It must be plain that a section meeting of this Association, even if the section had no other subject before it, has not the time to do this work: some of the section members have other interests in the Association to serve, subjects to discuss in other sections; hence it is impossible that they should give the time to the consideration of a subject involving such various propositions, ethical, social, professional, financial, philanthropic and legal.

To fix the attention on this subject and to secure the consideration of the individual members of the profession, we believe that a personal appeal should be made. It is probable that this could best be done through the various state boards of health. A circular letter with a leaflet for the physician to hand to his patient, with brief instructions and precautions to be observed to avoid communicating disease to others, might prove an educational force sufficient to set in motion a revolution in the profession regarding this question that would do much good. Accompanying this letter might be a few questions, the answers to be sent to their respective boards, by means of which the number of cases and other facts could be secured, which would be of great value in further attempts to stay the ravages of this plague. These questions should avoid anything that would possibly lead to the identification of the patient or which would in any way compromise the physician's relation to his patient.

The menace of these diseases to the public health and to the welfare of the nation has received the attention of the State and Provincial Boards of North America. At their annual meeting in 1903 the subject was presented setting forth the extent of the prevalence of these diseases and of the resulting destruction to health, life, social order and ultimately the stability of their respective governments. After an appreciative discussion, the following resolution presented by Dr. C. O. Probst was adopted:

Be It Resolved, That a committee of three be appointed by the president to prepare a leaflet that would be acceptable to physicians to give to their patients, setting forth the precautions to be taken by one suffering from a venereal disease to prevent its communication to others, and to make such other suggestions as it may deem proper, such instructions when adopted by this conference to be recommended to state and provincial boards of health for dissemination among the medical profession, and said committee shall report at the next meeting.

The president appointed as such committee Drs. Henry D. Holton, E. W. Cooper and Charles O. Probst. This committee reported at the meeting held in Washington, D. C. They recommended that the following letter be sent to every physician in the respective states, territories and provinces represented in the conference:

Dear Doctor:—The enclosed leaflet is issued in the interest of the prevention of venereal diseases. It is for you to give to each patient who consults you suffering from either gonorrhea or syphilis. It has been prepared so as to be concise and is in language to be understood by every one. This, we hope, will cause it to be read by those to whom it is handed. It will introduce the subject of prevention, thus enabling you to give your patient further information of the extent of this scourge.

It is estimated that 80 per cent. of all deaths from pelvic diseases in women are due to gonorrhea. Twenty per cent. of all blindness is due to gonorrheal infection of the newborn. Fifty per cent. of all involuntarily childless marriages are caused by gonorrhea of the female organs of generation, of which 45 per cent. are due to marital infection by men. In this country it is impossible to quote statistics, as they never have been gathered. The committee of fifteen estimated that there were annually 200,000 cases in New York city alone. In Prussia, where they have more reliable data, it has been stated that typhoid fever represents a yearly loss of 8,000,000 marks ($1,920,000), while the increased expenses and decreased income caused by venereal diseases amounts to 90,000,000 marks ($21,600,000) annually—an amount which ex-

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

ceeds that caused by tuberculosis. But the financial loss is of minor importance compared with the enormous social changes and consequent social misery.

In view of these startling facts, which indicate the increasing danger to our people, will you not, my dear doctor, aid your state board of health in gaining reliable statistics relative to these diseases by returning to the secretary each year the enclosed blank with every question answered?

Cases of gonorrhea observed during the year 190..: Male ..... Female ..... Married ..... Single..... Number having children ..... Number without children .....

Cases of syphilis ..... Male ..... Female ..... Married ..... Single ..... Number having children..... Number without children..... Duration of disease.....

CIRCULAR OF INFORMATION ADOPTED BY THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.

(Issued by the State Board of Health of.....)

This is handed you by reason of the exceedingly disastrous results that follow these diseases, so destructive to the health of our population that sanitarians in all countries have become seriously alarmed. A large percentage of the cases of blindness, as well as of inability to perform any of the duties of life, and death at an early date are results of these diseases.

Syphilis (or pox) is especially a disease from which innocent persons may suffer, as it usually produces sores in the mouth or on the lips, hence may be conveyed by kissing, by drinking from the same cup, or by using anything which has been put to the lips or into the mouth of one affected by the disease.

These diseases are often communicated when the patient thinks he has recovered. Hence marriages contracted at this time of the disease result in much unhappiness, and often in the death of the wife. To protect yourself and others, we earnestly advise the following:

IN THE INTEREST OF PREVENTION OF YOUR DISEASE.

What to do and what not to do, to get well and to prevent giving your disease to any other person.

Follow strictly the advice of your physician; use no other treatment.

Remember that it takes a long time to entirely recover.

Wash your hands with soap and hot water whenever you have had occasion to in any way handle the private parts.

Do not have intercourse and avoid all sexual excitement until your physician says you are completely cured.

Do not allow any person to use any cup, glass, spoon, fork or anything that you have put in your mouth.

Do not kiss any one and do not wipe the face of a child with the handkerchief you have used. Always use a separate towel.

This report was adopted and the committee directed to send to each board of health of the respective governments represented a copy of the same for the use of physicians in their jurisdictions. This committee will be pleased to receive helpful suggestions from the members of these joint sections. If after your consideration of this action you should wish to give this movement your endorsement, it would not only be appreciated by the conference, but would be a very substantial aid in prosecuting these efforts to gather information as the basis for further efforts to ameliorate and suppress these pestilential destroyers of our people.

Arrests and Excesses in Development.—Dr. Eugene S. Talbot, in the *Dental Digest*, says that through phases of the evolution of man affected by an unstable nervous system, either in parent or child or both, arrests and excesses in development (degeneracies) may occur in the face, eyes, nose, jaws, alveolar processes and teeth, and form the foundation of all pathology of these structures.

SUGGESTIONS CONCERNING THE ADMINISTRATIVE CONTROL OF VENEREAL DISEASES.*

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The absence of reliable statistics in venereal diseases is very much to be deplored, for, if we wish to approach the subject intelligently, we should know something more definite as to their prevalence. Venereal diseases should, therefore, be made reportable, without, however, giving names and addresses, and solely for statistical purposes, which will serve a useful purpose for the education of the general public.

An approximate idea of the prevalence of these diseases may be obtained by a study of army statistics. Dr. Munson[1] gives the latest admission rate per 1,000 strength as follows:

Germany	27.9	Austria-Hungary ...	61.0
Russia	36.0	United States.....	73.7
Japan	36.0	Great Britain (home	
France	40.9	statistics) 173.8	
Holland	48.1	Great Britain (In-	
		dian statistics)....522.3	

MEAN ANNUAL ADMISSION RATE PER 1,000 STRENGTH FOR THE THREE YEARS 1890-1892 (MUNSON).

	Germany.	France.	Russia.	Italy.	United States.	Dutch Troops.		British Troops.	
						Home Station.	East Indies.	Home Station.	In India.
Primary and secondary syphilis.	5.5	9.	13.1	13.9	16.83	14.8	47.0	101.7	175.4
All other venereal diseases.	21.8	34.9	29.9	57.4	57.96	55.	408.6	101.9	262.6

It is a lamentable fact that the very countries in which the sentiment both in and out of the profession is strongly against recognizing the evil furnish the highest army rates, while in armies where some special regulations are in force preventing the spread of venereal diseases, such as weekly inspections of the men and periodical examination of the women engaged in prostitution, with compulsory isolation if such are found diseased, the rates are lowest.

The comparative amount of army and civil venereal diseases is not known, because we have no accurate statistics of the civil amount. According to Fournier, one-seventh of the population of Paris is syphilitic, and the mortality among infants born of syphilitic parents in many hospitals of that city reaches from 84 to 86 per cent. According to Dr. Weiss, there are 150,000 syphilitics in Berlin, or 12 per cent. of the inhabitants. In the city of New York the number is estimated to reach over 225,000, or 15 per cent. In Copenhagen one of every 55 young men of the age between 20 and 30 has syphilis and one in 8 has gonorrhea. Parkes of England says: "It is a question whether a large number of the young men of the upper and middle classes do not suffer in youth from some form of venereal disease. In the lower classes it is perhaps equally common."

Neisser holds that gonorrhea, with the exception of perhaps measles, is the most widespread of all diseases.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Military Hygiene, p. 823.

Other German authorities have computed that fully three-quarters of the adult male population and one-sixth or more of the adult females have contracted gonorrhea; that 80 per cent. of all deaths from diseases of the uterus and its appendages are of gonorrheal origin, while ophthalmia neonatorum contributes a contingent to our asylums for the blind estimated at from 10 to 20 per cent.—from 40 to 60 per cent. before the Credé method was instituted.

Dr. S. M. Burnett of Georgetown University believes that 15,000 of the 50,000 blind persons in the United States lost their sight from this cause, involving a financial loss to the commonwealth of seven and one-half millions annually.

The destructive effects of gonorrhea on the procreative functions have been very properly emphasized in connection with the "race suicide problem" and are certainly startling when we are told that 50 per cent. of all involuntary childless marriages are due to this cause.

The measures which have been proposed for the prevention of these diseases which affect not only the offender, but innocent wives, the offsprings and not infrequently even the medical attendant, are numerous enough, but not so easy of practical application. On the whole I believe that the remedy lies in public education, and the task, as usual, falls on the medical profession, especially the trusted family physician. The great majority of people have no knowledge of the subject simply because it is not one which lends itself to general discussion, but there is no reason why the question should not be approached from the standpoint of sexual hygiene, pure and simple. Public lecturers on the purity of man commit a serious mistake, however, when they picture the consequences of the social evil, without offering a suitable remedy.

We should make a strong plea in favor of continence and tell our young men that, while the sexual passion is very strong, it can be accelerated or delayed, excited or lowered by the influence of the will. We should assure them that sexual indulgence is not a physiologic necessity, and that nature will relieve herself by an occasional nocturnal emission; that by the cultivation of pure thought, removal of temptation, normal and mental, and especially by vigorous physical exercise, continence may not only become possible, but easy. We can hardly go astray if we follow Dr. Parkes in advising a pure young man to make his home after the age of 22 or 23 and thus secure himself both from the temptation and expenses of bachelorhood. Dr. Howard A. Kelly believes that the Christian standard is the solution of the whole problem of chastity. I quite agree with him, provided the church makes an endeavor to combine religious and social work; such an effort has recently been made in the establishment of the Everett Clark Club House, the gift of Mrs. Potter, wife of the Bishop of New York, and of her son, Lieut. Clark, U. S. A., to the members of Grace Episcopal Church, Elizabeth, N. J. The special interest of this gift lies in the fact "that it is a signal example of intelligent contribution to the needs" of the whole man, religious, physical, social and esthetic. Under one roof there are a chapel, kitchen, restaurant, dining, reading, card, committee, smoking, shuffleboard and billiard rooms, swimming tank and other baths, gymnasium, running track and bowling alleys.

With such opportunities we can, indeed, hope for a higher cultivation and moral training of the male youth in all its grades, but until these measures are attained we should not hide the evil, because "it is not a pleasant subject to talk about."

The question naturally arises, "What can and should the state do to prevent the moral, social and physical ravages of these diseases?" The sanitarian suggests that a person afflicted with a venereal disease is quite as much a menace to the public health as would be a case of smallpox or any other communicable disease, and points with emphasis to what has been accomplished in Europe in the way of official control of prostitution, as a lesser evil, by registration of brothels and their inmates, periodical inspections and the detection and cure of diseased men and women.

He will tell us, and statistics will support him, that the prevalence of venereal diseases is least where sanitary measures are most rigorously enforced.

The medical profession is by no means agreed as to the propriety of this method, mainly because such a system seems too much like a recognition of the inevitableness of the social evil and is practically an official sanction of it; others, moreover, with good reason, assert that licensing and sanitary inspection tend to produce clandestine prostitution, which has heretofore furnished the largest number of syphilitic cases. On the whole, we may conclude that health officers in this country are not prepared to advocate the Paris plan of inspection and license.

There are, however, a few things which the state should insist on:

1. The enforcement of laws or police regulations relating to houses of ill fame, soliciting in streets and enticing females under a fixed age. There is certainly no good reason why the terrible temptations which greet our young men and women on every street and in many public places should not be removed. There are times when the strictest virtue may well dread such an appeal to their passions, and, as Parke expresses it, "human nature is but too weak and needs every safeguard it can get." A well-trained police force will have no difficulty in recognizing and banishing the solicitors, both males and females, from the streets.

2. Health boards can also recommend the enactment of laws for the prevention of syphilis, acquired in an extragenital way, by regulating the profession of barbers, chiropodists and manicurists, and requiring a special examination of wet nurses, cigarmakers and glass-blowers. Apart from the real dangers from these sources the educational effect of such ordinances will be beneficial.

3. Health boards should also exert their influence toward securing adequate facilities for the treatment of indigent patients.

In northern Europe, where venereal diseases are reportable and treatment is within the reach of all classes, these diseases, according to Weiss, have greatly diminished, but here, as Bulkley puts it, "ignored through ignorance, neglected through negligence of our duty, so ostracized and outclassed, venereal diseases, through false shame, concealment, prejudice, carry on their slaughter, unhampered, unchecked and undisturbed, devastating coming generations and ruining the present one."

4. Health boards may co-operate with the profession and with the dispensaries by printing for distribution leaflets, stating the nature of the diseases, the manner in which they are contracted and the ways in which they can be transmitted to other persons, and by the encouragement of a general educational campaign in which

sexual purity, respect for women and the possibility of physiologic continence should be inculcated. The evil and far-reaching consequences of impure and unlawful gratification should be clearly pointed out; but the profession should abstain from a discussion of the individual means sometimes employed in the prevention of these diseases, as none is reliable and all are immoral.

DISCUSSION

ON THE SYMPOSIUM ON VENEREAL DISEASES.*

DR. SENECA EGBERT, Philadelphia, said that he thinks that the state and provincial boards of health and the American Medical Association ought to fight this great evil by beginning and carrying on a work of education; and he believes that one way in which this can be accomplished is by the preparation of some literature for the use of the physician, who is the man who comes most closely in contact both with the individual who sins and with the innocent one who suffers—as a measure of informing and educating his patients. It will be necessary for physicians to use discretion in giving out this literature, and Dr. Egbert believes that before this literature is put in the hands of the laity it ought to bear the stamp of approval and authorization of the entire American Medical Association. While there are admirable works on this subject, there has always been in the past a certain amount of hesitancy about endorsing for the laity the book of a man who writes on sexual matters. If some literature could be prepared by the committee which Dr. Holton represents, it could be presented to the people, not as coming from any particular author, but as coming from, and endorsed by, the American Medical Association. The influence of such a work would be very great, and the Association would accomplish a great work. Dr. Egbert believes that the people of this country must be made to realize the need of teaching modern hygiene in the schools. This should include hygiene in relation to personal, household and municipal matters, such as the purification of water supplies, the means of disseminating infectious diseases, the necessity for and principles of ventilation, the disposal of waste matters, influence of occupation, and habits, etc. Until the public realizes that this is the kind of teaching needed, physicians are not apt to do much in the direction of public instruction on the subjects that are now under discussion.

DR. D. C. BROCKMAN, Ottumwa, Iowa, said that instead of putting literature in the hands of young people, facts should be put into the heads of the children. We must not wait till the young man goes to college for this information. High school boys often acquire syphilis and gonorrhea before they start to college. A beginning must be made in the home and in the grammar school. The girls and boys must be taught the elements of sanitary science, the cause of contagious diseases, how typhoid fever, diphtheria, scarlet fever and consumption are propagated and how prevented. The way to prevent disease is to teach the people the primary cause of it, and how to avoid contact with the causative agents. In the public schools the children should be taught more of the practical things that will be of use later in life and less of the useless things which they forget as soon as they get out of school. The older children should have instruction in sexual sanitation. The boys should be taught that gonorrhea is one of the most prevalent and dangerous diseases extant, that syphilis is everywhere and that its baneful influence extends to the next generation. The girls must be taught self-preservation from diseased husbands. They must be made to understand that a man of loose morals in all probability has diseases that will curse his wife and be entailed on his children, and that such a man is not safe for any woman to marry. Parents must be taught to look after and to protect their daughters from men of easy virtue, men who may not be intentional criminals but who have contracted venereal diseases before they knew the danger of them, and who are ignorant of the fact that they will communicate them to their wives and children. Parents should know that the majority of the young men in our cities are already contaminated by these diseases, and that more disease, suffering and death result to innocent wives and children therefrom than from all other contagious diseases combined except consumption. These facts must be imparted to both young and old until the entire people have a wholesome fear of venereal diseases. Lectures should be delivered to working girls and boys that will warn them of these dangers, and physicians must be the missionaries to spread this gospel of virtue, purity and health.

DR. PETERKIN, Seattle, Wash., declared that as man must make his own morality, prophylaxis must be along educational lines, and men must be taught that immorality is an endeavor on their part to obtain all the pleasure from a law of nature without paying the cost, and that it can only result in disaster to themselves. A man must be taught that if he does not contract venereal disease, he contracts habits that diminish the pleasure of sexual intercourse under normal conditions, and that cause him, if he marries, to make his wife disgusted or indifferent to an act that by mutual endearment rivets the ties of marriage. Young men should be told that continency is not detrimental to health. Physicians should be supplied with literature dealing with prophylaxis, mental and physical, to be distributed at their discretion to patients. The committee of the Washington State Medical Society is doing this, and expects good to follow.

DR. R. W. CORWIN, Pueblo, Colo., declared that the people should be educated regarding the effects of venereal diseases on the race; but the question is, how are they to be enlightened? When asked to speak on this subject to students of one of the eastern universities, his first embarrassment was the language to be used to students outside of medical schools that they might understand, yet not consider him common or vulgar; next, to interest and not to amuse them. Physicians are agreed that the facts presented in this Section should be known to the young; but who shall teach them? If the physician attempts it he will be accused by the profession of advertising, and by the parents of interfering with that which many claim more properly belongs within the province of the duties of the father and mother. If parents only understood the importance of the subject the way would be clear, but as a rule they are indifferent through ignorance and false modesty. Occasionally a parent is found like Mrs. George Gould, who teaches her boys to take an interest in athletics, and that one can not excel in them and dissipate. The boy often can be reached in this way; the girl may be reached through fear; but all boys will not try to be athletes, and most women contract these diseases innocently. The effects of venereal diseases should be taught in the public schools. These diseases do more injury to the human race than alcohol or tobacco, hence the greater need of their being understood.

DR. A. E. CARRIER, Detroit, Mich., stated that while talking about issuing pamphlets nothing has been said about the home. It is the parent's duty to instruct their children. Dr. Carrier asked how many physicians instruct their sons and daughters regarding the dangers of venereal diseases. We must take into consideration the masses who are not educated. The inhabitants of the slums are the ones who spread these diseases. When a pamphlet is handed to a merchant, well and good, he may read it, but it is the people in the slums who must be educated regarding the danger of contracting and spreading venereal diseases. In some states the question of a physical examination before marriage is being agitated, and this Dr. Carrier thinks is a good thing. He thinks that every man and every woman before contracting that obligation should present a clean certificate of health.

DR. A. ROBIN, Wilmington, Del., said that he does not think that in this very grave and difficult problem any one method, such as education, will bring about the desired results; for instance, medical students are educated on the subject of venereal diseases, and yet venereal diseases among them are by no means infrequent; this is equally true of unmarried

* This symposium is continued from THE JOURNAL, March 4. A further part of this symposium is the report of the Committee on Prophylaxis of Venereal Diseases, published in THE JOURNAL, June 18, 1904, page 1641.

physicians. Education alone will not bring about the contemplated result, for the simple reason that a man about to visit a place where gonorrhea is liable to be contracted is not bothering his mind about logic or pamphlets, but in most cases is under the influence of liquor, and does not remember any injunction he has read. For two years Dr. Robin has lectured to students of the state college on hygienic subjects, and also on venereal diseases. He found that the best results could be achieved through the personal relationship between the students and himself. He put himself in a position that caused him to be looked on by the students as their friend and adviser. One boy came to him and told him that he had contracted gonorrhea. Dr. Robin offered to examine the secretions for him, as often as necessary, explaining the seriousness of the disease, and volunteered such information as would be of benefit to him. He also pointed out the necessity of abstaining from intercourse or excitement. The result was very much better so far as that boy was concerned than if he had given him a single lecture and allowed him to go. Eight months after the attack he asked Dr. Robin if he would allow him to drink gin, he not having tasted liquor for the entire period, although greatly tempted. He was under treatment by another physician, and Dr. Robin referred him to his family physician. What is needed in the colleges is some physician to come in contact with the boys in the capacity of teacher or adviser, but not for the purpose of treatment. There should be someone to whom the boys can go and ask advice about themselves. Dr. Robin considers that education should be personal rather than through literature. Physicians know just about what effect literature has, at least those who have published bulletins for distribution among other physicians. Many people are in the habit of reading nothing unless it is spicy or sporty. In this connection there ought to be also some form of legislative enactment. While reglementation is decried by a great many people, yet it appears that when properly carried out it may be valuable. The control, however, should be placed in the hands of sanitary and not police officers. There should be plenty of dispensaries which would enable the poor young man to get away from the quack and the dispensing druggist, and these dispensaries should be under the control or supervision of the boards of health. An effort should be made to work on all sides rather than to confine the work to circulars alone.

DR. HENRY B. BAKER, Lansing, Mich., stated that in Michigan a law has been in force about nine years, which requires that there shall be taught every year, in every public school of the state, the means by which dangerous communicable diseases are spread, and the best measures for their restriction. There is no text-book on that subject, and if there were, it would probably be out of date in a year; therefore, the law of Michigan requires that the State Board of Health every year shall supply the data and statements which will enable the teachers to comply with the law. There are about twenty thousand teachers in the state, and this has been done for nine years. The diseases which have been dealt with in that manner are consumption, diphtheria, scarlet fever, typhoid fever, and so on, and the relative importance of these diseases has been set forth in leaflets supplied to the teachers. Syphilis and gonorrhea are not included in the instructions, notwithstanding the law as it stands would necessarily include them. A year or two ago the State Board of Health appointed Dr. Baker a committee to work out some plan whereby these diseases could be successfully dealt with. In each state the state board of health should be an educational force along this line. In Michigan, this law, for nine years, has worked wonderfully well in regard to the other diseases. Under that law there is supplementary action by the State Board of Health, which would be especially valuable for education along these lines.

DR. FRANK W. GOODELL, Effingham, Ill., said that education may be good or bad. A man may receive a moral education, and if he wants to become a first-class safe blower he receives an education in that line also. It is a question which has two sides of nearly equal strength and weight, as to whether or not men and women should be taught how to prevent the injurious effects of what would otherwise be injurious copulation. If women are taught how to prevent venereal disease, and then taught how to prevent conception, prostitution will increase to an alarming extent. About the only way to prevent the contraction of these diseases is by impressing on the people the fact that a dangerous disease is apt to follow the committing of the indiscretion. Fear seems to be stronger than anything else to prevent crime. There is no one means which will alone prevent the contracting of these diseases, but the enemy should be attacked from every point. Another thing which has not been referred to is that of honor among men as well as honor among women. Nothing has been said about the seduction of men. Men are not prostitutes. So long as women continue to be more than ordinarily attractive to men just so long men will keep up the pursuit. Morality ought to be talked equally to both. In talking with a man who had been much among Indian women Dr. Goodell asked him in regard to the virtue of Indian women as compared with the virtue of our women, and he said it was astonishing, but true, that virtue among Indian women at the time he knew them was equal to virtue among American women. Dr. Goodell said that he knows of no particular means which he could recommend, but thinks that all means should be employed to eradicate the social evil.

DR. THOMAS GRANT YOUMANS, Columbus, Ohio, stated that one of the most important present-day problems is the protection of the innocent from the latent gonococcus. Most men who have been once infected, and who contemplate matrimony, seek medical advice to determine whether or not they are free from infection. Many times this advice is worthless. Therefore, one of the most important things is to show the people, and especially the men who have charge of the medical laws, that the druggist is not a competent man to treat gonorrhea; for many of these cases are treated originally by the druggist. In the second place, the general practitioner should be impressed with the seriousness of the disease. He should be shown that it requires men of special training and equipment properly to treat gonorrhea.

DR. J. A. WORK, Elkhart, Ind., declared that early training in the schools is a grand work. Solomon, although unwise in some things, yet gave the best advice in regard to the training of children. His advice was to "train up a child in the way he should go, and when he is old he will not depart from it." John G. Holland teaches that a young man should keep himself pure, and Dr. Work believes that personal purity should be taught to the infant. He has seen children that were scarcely out of their short dresses who had impure thoughts.

DR. L. DUNCAN BULKLEY, New York City, said that education is well enough, but until these venereal diseases are put on the list of diseases to be cared for by the boards of health, physicians will never accomplish their purpose.

A STUDY OF METABOLISM IN A CASE CONJOINING MYXEDEMA AND DIABETES MELLITUS.*

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The metabolic changes in the adult have at sundry times and by many careful investigators received due attention, but it is very infrequent to see them investigated in childhood, whether in health or disease; and meeting a case where this research could be carried out and where the bodily health was away from the normal, I have herein set myself the task of studying the metabolism in a child suffering not only with an aggravated form of diabetes mellitus, but where such metabolism was further modified by the fact that he was a congenital cretin.

In the light of recent assertions as to the genesis

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of diabetes mellitus and the interrelation of it and other dyscrasiæ of similarly hitherto unknown etiology, the case assumes still further interest if we debate the question of the interrelation of the two dyscrasiæ found here. How far was the improvement in the child's mental status due to the small quantity of thyroid extract exhibited and the short time it was employed? How far was it influenced by the secondary disease, the diabetes mellitus? Was the chronic character of the disease at all influenced by the thyroid condition?

Of course these are purely speculative fields, but viewed from the standpoint of our present lack of positive knowledge, this contribution may give an impetus to further study along these lines to pediatrists, though I am well aware that two such formidable nutritive dyscrasiæ are very rarely found in conjunction in the one subject, and I consider my opportunity to study the case one of good fortune.

It may be best at this point to enter into the history of the case, to serve as a basis for the future deductions my experiments along the lines of metabolism have allowed me.

CASE 1.—On July 7, 1902, A. R. was brought to my office for diagnosis and treatment, if possible. From his mother I elicited the following history:

Family History.—In paternal line, father is of nervous temperament, but not pathologically. Grandparents normal. One aunt was very nervous and procreated an imbecile. In maternal line, no abnormality of any sort and grandmother still living. On both sides no history of venereal or neurotic affections with the single exception above.

Personal History.—The patient is the last of four healthy and normally procreated children. The mother lays stress on the fact of having suffered great anxiety because of financial reverses at the time of his gestation, but beyond that is at a loss to account for the child's condition. Symptoms of cretinism were visible since birth, but the diagnosis was not made, although the attending physicians seemed to feel that something was not in order. The child was breastfed and the characteristics of his disease, as is usual, did not develop until after he was weaned. He did not attempt to walk until after he was three years old. He suffered with frequent gastric and cardiac crises. After weaning, he became abnormally fat, developed a blank, mask-like face, with stubby nose and thick lips, and old photographs show the typical features of an early case of infantile myxedema. A year ago he was taken to the Postgraduate Hospital, sent there by his physician, where at last the diagnosis was made and suitable treatment by means of thyroid extract instituted.

Present Status.—Child is at present eight years old. He is heavy for his age, has a dull, uninterested face, mask-like, with depressed nose, open mouth, fat, everted lips, prognathic, thick, protruding tongue, lolling speech if a rare word escapes him, slow but not entirely absent mentality. Absolutely no thyroid gland tissue is palpable. Lumps of tissue over the clavicular spaces were present. The abdomen was large and the umbilicus protruded. The epiphyses were enlarged at the knees, ankles, elbows, and wrists. The muscular system was flabby and without tonicity. The skin was dry, scaly and boggy; no perspiration had ever been noticed. The hair was sparse, wiry and lusterless.

Treatment.—As the child at this visit had had no thyroid extract for over four weeks and had previously improved under its use, to judge from the mother's statement, its administration was resumed and in addition to aid his digestion and prevent the ever recurring gastric crises, a pepsin mixture was prescribed.

Keeping him under observation there was a distinct improvement, not only in the loss of the redundant tissue, but in increased intelligence. Although very weak at times, he was much brighter and slightly more active. He had begun to combine a few words into phrases.

Occurrence of Diabetes.—With occasional short intermissions, the thyroid feeding was maintained until in September, 1902, his mother brought him to the office with the history of a new condition which had supervened in the last two weeks. After or perhaps because of over eating of grapes and ripe fruits of other sorts, the child had developed a glycosuria, which the attendant train of symptoms stamped as a diabetes. He had a constant violent thirst, was ravenously hungry and almost constantly micturating.

Urine.—Analysis of the urine showed 10 per cent. of sugar, and some days later even 12 to 15 per cent., passing four liters in twenty-four hours.

Treatment.—He was immediately placed on strict diabetic diet; Vichy given to allay the thirst and alkalinize the urine, codein sulphate 0.006 gm. was given four times a day. For the obstinate constipation the fluid extract of cascara was used.

Knowing that occasionally thyroid feeding produced a temporary glycosuria, the tablets were stopped entirely to eliminate them as factors.

Two weeks of this treatment availed little, except that it caused less frequent micturition and less craving for food. The drowsy condition superinduced by the codein was objectionable, however, and the fact that the child was rapidly failing from the withdrawal of the carbohydrates and fats, caused the resumption of a less restricted diet. For a month I did not see the child again, and when he was brought it was found that although analysis showed only 8 per cent. of sugar by trituration and by Robert's fermentation tests, still the myxedematous condition was coming back. The child's intelligence was even less acute than before, mentality was painfully slow, his tongue was protruding worse than ever and the abdomen at umbilicus was larger than at any time I had ever seen him.

As evidently the exhibition or withholding of thyroid extract had made so very little difference on the course of the diabetes, I determined to resume the use of the tablets to at least keep up the good they had before accomplished. The parents stopped them, however, of their own accord, as the child was failing rapidly; and he never received any further thyroid extract in any form since that time. However, later developments showed that this was not essential in his case, as evidently the diabetes itself to a certain extent influenced the cretin condition, as witness the facts that at the time of making these experiments, although the child was very ill with the diabetes, his mental condition, though of course far in arrear of a nine year old boy's, was steadily improving; he was interested in his surroundings, combined words and phrases into sentences logically constructed, had the reasoning powers of a child of about five years of age, was crafty in attaining his objects, quicker in his movements, and, all in all, was making progress.

At the same time, however, the diabetes was far from showing a similar improvement; it was rather at a standstill; and although the child had grown taller, he was thinner also. That the condition was constant, frequent urine examinations have proven, for the percentage of sugar at no time fell below five. His diet was only nominally restricted. At rare intervals a very minute quantity of sugar would slip into the diet; but it was found that otherwise the craving for sweets was not very marked, provided some starches and fats were allowed, as in bread or potatoes. As giving them did not seem to aggravate the trouble and certainly did benefit the patient, they were carefully given, most of the food of course being still proteid in character. This is the reason for the apparent paradox in the diet lists in the body of the paper as viewed from the standpoint of severe diabetes mellitus. To investigate this seeming incongruity, the following experiments in metabolism, imperfect as they are, were undertaken.

They were imperfect because it was impossible without a specially constructed laboratory to determine the respiratory

TABLE 1.

Date	Food	Total Quantity	Water	Protein	Fat	Total Carbohydrate	Ash	Calories per lb.	Calories in Food
Nov. 4	Bread (gm. or cc.)	326.0	126.06	30.42	3.91	169.75	3.91		865.19
	Bread (per cent.)		35.6	9.3	1.2	52.7	1.2	1,205	
	Milk (gm. or cc.)	236.0	205.35	7.79	9.44	11.08	1.65		162.5
	Milk (per cent.)		87.	3.3	4.	5.	0.7	325	
	Egg (gm. or cc.)	56.07	36.45	6.21	8.24	.....	0.56		95.63
	Egg (per cent.)		65.	11.7	14.7		1.	765	
	Butter (gm. or cc.)	42.53	4.68	0.43	36.15	.....	1.28		337.96
	Butter (per cent.)		11.	1.	85.		3.	3,605	
	Oatmeal (gm. or cc.)	141.75	119.78	3.97	0.71	15.66	0.99		89.06
	Oatmeal (per cent.)		84.5	2.8	0.5	11.05	0.7	285	
	Banana (gm. or cc.)	85.05	64.03	1.10	0.51	18.71	0.68		86.25
	Banana (per cent.)		75.3	1.3	0.6	22.	0.8	460	
	Beef, chopped, (gm. or cc.)	226.08	153.77	47.4	24.04	.....	2.49		417.5
	Beef, chopped (per cent.)		67.8	20.9	10.6		1.1	835	
	Potatoes, boiled, (gm. or cc.)	226.8	161.23	5.67	0.23	47.4	2.27		220.0
	Potatoes, boiled, (per cent.)		75.5	2.5	0.1	20.9	1.	440	
	Corn, canned, (gm. or cc.)	3.54	2.69	0.10	0.05	0.67	0.03		14.21
	Corn, canned, (per cent.)		76.1	2.8	1.2	19.	0.9	455	
	Soda Crackers (gm. or cc.)	113.4	6.69	11.11	10.32	82.90	2.38		481.25
	Soda Crackers (per cent.)		5.9	9.8	9.1	73.1	2.1	1,925	
	Coffee (gm. or cc.)	66.70	66.05	0.027					0.68
	Coffee (per cent.)			0.04					
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1065.0							
Nov. 5	Bread (gm. or cc.)	198.45	70.45	17.45	2.38	102.62	2.38		527.19
	Chopped Beef (gm. or cc.)	113.4	76.88	23.7	12.02		1.24		208.75
	Milk (gm. or cc.)	295.7	257.25	8.76	11.83	14.79	2.07		231.25
	Butter (gm. or cc.)	56.7	6.27	0.57	47.20		1.70		450.63
	Oatmeal (gm. or cc.)	113.4	95.82	3.18	0.06	12.53	0.79		71.25
	Oatmeal Gruel (per cent.)	59.2	54.23	0.71	0.24	3.75	0.30		19.37
	OatmealGruel (per cent.)		91.6	1.2	0.4	6.3	0.5	155	
	Soda Crackers (gm. or cc.)	28.35	1.67	2.78	2.58	20.72	0.6		120.31
	Potatoes, cr'm'd, (gm. or cc.	56.7	42.58	1.17	2.70	10.09	0.85		63.13
	Potatoes, cr'm'd, (per cent)		75.1	2.06	3.	17.8	1.5	505	
	Potatoes, b'l'd, (gm. or cc.)	28.35	21.40	0.71	0.03	5.93	0.28		27.5
	Coffee (gm. or cc.)	59.20	59.15	0.023					0.68
	Tea (gm. or cc.)	59.20							
	Water (gm. or cc.)	1095.0							
Nov. 6	Bread (gm. or cc.)	170.10	59.64	15.82	2.04	88.57	2.04		451.86
	Milk (gm. or cc.)	335.27	291.68	11.06	13.41	16.26	2.35		223.41
	Egg (gm. or cc.)	85.05	55.28	9.42	12.5		8.5		145.29
	Lamb (broiled) (gm. or c.c.)	170.10	80.97	36.91	50.86		2.21		624.36
	Lamb (per cent.)		47.6	21.7	29.9		1.3	1,665	
	Potatoes (c.) (gm. or cc.)	42.53	24.04	1.10	1.28	6.87	0.64		47.34
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Apple (stewed) (gm. or c.c.)	42.53	25.98	0.085	0.34	15.12	0.23		22.81
	Apple (stewed) (per cent.)		61.1	0.2	0.8	37.2	0.7	285	
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	89.0							
	Water (gm. or cc.)	473.0							
Nov. 7	Bread (gm. or c.c.)	198.45	70.65	17.47	2.38	103.58	2.38		517.17
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Beef stew (gm. or c.c.)	226.8	191.65	10.43	9.75	12.47	2.90		185.0
	Beef stew (per cent.)		84.5	4.6	4.3	5.5	1.1	370	
	Lambchop (gm. or cc.)	141.75	67.47	30.66	42.38		1.84		520.3
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.2		1.70		450.62
	Coffee-cake (gm. or c.c.)	56.70	12.08	4.03	4.25	35.83	0.51		203.13
	Coffee-cake (per cent.)		21.3	7.1	7.5	63.2	0.9	1,625	
	Molasses (gm. or c.c.)	28.35	1.76	1.94	2.47	21.46	0.62		119.38
	Molasses cake (per cent.)		6.2	7.2	8.7	75.7	2.2	1,910	
	Apple (raw) (gm. or c.c.)	14.18	12.07	0.064	0.07	2.09	0.04		9.06
	Apple (raw) (per cent.)		84.6	0.4	0.5	14.2	0.3	290	
	Coffee (gm. or cc.)	118.40	118.35	0.05					1.16
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1063.0							
Nov. 8	Bread (gm. or cc.)	141.75	50.46	13.18	1.70	74.70	1.70		376.55
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		284.35
	Roast Beef (gm. or c.c.)	170.10	81.99	37.93	48.65		2.21		607.50
	Roast Beef (per cent.)		48.2	22.3	28.6		1.3	1,620	
	Oatmeal (gm. or cc.)	170.10	143.70	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.20		1.70		450.62
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Cauliflower (gm. or c.c.)	113.40	104.67	2.04	0.57	5.33	0.79		35.0
	Cauliflower (per cent.)		92.3	1.8	0.5	4.7	0.7	140	
	C.-starch pud'g (gm. or c.c.)	56.70	7.94		0.06	48.71			200.0
	Corn-starch (per cent.)		14.		0.1	85.9		1,600	
	Stewed apple (gm. or cc.)	28.35	17.32	0.06	0.23	10.55	0.20		45.62
	C.-cake (gm. or cc.)	141.18	3.02	1.01	1.06	8.96	1.28		50.78
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	917.0							
Nov. 9	Bread (gm. or cc.)	113.40	40.37	10.55	1.36	59.76	1.36		301.24
	Milk (gm. or cc.)	443.55	358.89	14.64	17.74	22.18	3.10		101.55
	Egg (gm. or cc.)	42.53	27.64	4.98	6.25		0.43		72.65
	R. Beef (gm. or cc.)	86.05	41.48	19.19	24.61		1.12		303.75
	Potatoes (gm. or cc.)	86.05	64.62	2.24	2.58	15.32	1.29		94.68
	Oatmeal (gm. or cc.)	226.80	191.64	6.35	0.112	25.06	1.60		142.50
	Ch. Beef (gm. or cc.)	56.70	38.45	11.80	6.01		0.62		105.00
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	798.0							
Nov. 10	Bread (gm. or c.c.)	212.63	75.71	19.77	2.55	112.06	2.55		564.83
	Milk (gm. or c.c.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Egg (gm. or c.c.)	42.53	27.64	4.98	6.25		0.43		72.65
	Beef (boiled) (gm. or c.c.)	198.45	75.61	51.99	69.36		1.79		1228.19
	Beef (boiled) (per cent.)		38.1	26.2	34.9		0.9	2,805	
	Oatmeal (gm. or cc.)	113.40	95.81	3.18	0.06	12.53	0.80		71.25
	Coffee cake (gm. or cc.)	14.18	3.02	1.01	1.06	8.96	1.28		50.78
	Stewed apple (gm. or cc.)	56.70	34.64	0.11	0.45	21.10	0.40		91.24
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Coffee (gm. or cc.)	89.0	88.95	0.04					0.97
	Water (gm. or cc.)	1123.5							

output of the subject. With this exception, however, the results are all vouched for. The mother of the patient, an unusually intelligent woman, was easily instructed and faithfully carried out the weighing and measuring of the food and drink and keeping an accurate record of the items of the diet; she collected and measured and sent for analysis the urine passed, keeping a record of the time and quantity of the micturition. A two-ounce specimen of every urination was saved in a clean bottle, labeled with time and quantity. The rest was poured into a separate vessel and a liter of this twenty-four hour mixture sent at the same time each morning for the determination of general constituents.

Examination of Excreta.—The stools were collected and weighed and then sent to the office, the particular feces being marked off by the ingestion of lamp black. It was necessary to give patient an aloin pill every night, as otherwise I would have gotten no stool for a week or more. As it was, stools were only passed four times during the week of experimentation. As said above, for the figures of the tests of urine and feces, I can vouch, many of them being repetitions.

Another possible source of error, which, however, is minimal, is the fact that because of lack of laboratory facilities I was unable at first hand to make the chemical analyses of the foodstuff ingested. As representative, however, of the food value and percentage of chemical ingredients of American foodstuffs I could not go very far wrong in making use of Professor Atwater's[1] figures, and these were used to serve as a basis for my work. The averages he gives were used as being most nearly correct for the food given the patient.

In the analysis of urine, the quantitative Fehling test was used for sugar; urea was determined by the hypobromid method; the total nitrogen by the Kjeldahl method as given by Neubauer and Vogel;[2] acetone was tested for only qualitatively by Lieben's and Legal's

1. Methods and Results of Investigations on the Chemistry and Economy of Food, Bull. 21, U. S. Dept. Agriculture.

2. Neubauer and Vogel: Analyse d. Harns.

methods; diacetic acid by Gerhardt's method; albumin, indoxyl and chlorids by the usual methods.

The tests with the feces were as follows: After weighing, they were dried with a small quantity of phosphoric acid to prevent loss of nitrogen by evaporation; of the dried feces part was used to determine the total nitrogen in a given quantity by the Kjeldahl method; fats were determined by ether extraction and carbohydrates by difference.

As is usual, the factors of Rübner[3] for caloric value (4.1 for protein (6.25xN) and carbohydrates, and 9.3 for fats) were used both in the determination of income and outgo of foodstuffs and metabolic products.

In Table 1 is recorded the daily food income of the patient, the chemical ingredients of which were based, as was stated above, on the figures taken from Professor Atwater's "Bulletin on the Chemical Composition of American Food Materials." It will be noticed that the diet is now anything but strictly antidiabetic; but I insisted on the same regimen being maintained as that on which he seemed to be doing fairly thus far.

In Table 2 I have gathered the totals of Table 1 to serve as a basis for comparison with the outgo in urine and feces in Table 4.

In Table 3 are combined the results of the urinalyses. I thought it would be of interest to see if there was any cycle in the excretion of sugar and how much such depended on the ingesta. In this, however, it failed, as although the record revealed that the bladder acted at almost regular intervals and excreted in narrow limits almost the same quantity at each micturition, yet the percentage of sugar remained fairly constant.

The twenty-four hour period went from 7 a. m. to 7 a. m. and in that period there were on an average five acts of urination. The average daily amount of sugar passed was about 150 gms. and the amount of urea varied between 4.5 to 10.0 gms. daily, which falls slightly below the normal for a child of his age and weight (14.5 kgm., 32 lbs.).

The presence of acetone varied, but was fairly constant so far as symptoms went, for on the days when it was present the child acted less well than when it was absent. Diacetic acid was never present in quantity large enough to be detected; albumin was not found at any time. In other respects the urine did not deviate from the normal.

The examination of the feces gave these results. One stool was examined and the results obtained used to compute the figures for the total excreta of the week.

311.84 gm. (11 oz.) feces yielded 91.93 gm. of water-free substance. From this water-free substance, divided into weighed parts of 6.25 gm. each, there were obtained.

Total N.	Fat (ether extract)	Carbohydrates.
1.065 gm.	23.50 gm.	61.77 gm.

Based on this, the following figures were obtained as results for the week:

Protein (Nx6.25)	Fat.	Carbohydrates.
19.96 gm.	70.50 gm.	185.31 gm.
Calories—81.87	655.56	759.77

3. Rübner: Calorimetrische Methodik, 1891.

In Table 4 we find the metabolic balance sheet. From it will be seen the income and outgo of the protein and carbohydrate constituents of food and excreta, and also their gain and loss to the body in terms of energy—calories. It will be readily seen that the child was more than holding his own, and as Klemperer[4] says is the case in the convalescence from acute diseases, in simple inanition, and in some forms of obesity and in myxedema, he presented a diminished outgo of protein.

Termination of Case.—On Feb. 7, 1904, I was summoned to his bedside, because of what his mother called a spasm. This yielded, however, without any treatment; but there was weakness and trembling of the lower extremities at any and all times thereafter. Twenty days later, although rational and apparently as well as ever in the morning, he went into coma at 5 p. m. with almost constant alternating tonic and clonic convulsions; death occurred sixteen hours later. Necropsy was refused by his relatives.

The urine passed thirty hours before death contained 4.8 per cent. of sugar, specific gravity, 1032, slight traces of albumin, a few granular casts, some acetone and gave a very faint reaction to v. Jacksch's[5] test for diacetic acid. Before death, in fact during coma, there were many involuntary dejections and micturitions.

In the literature of pediatrics I have been unable to find such a combination as detailed above in the case under discussion, and I look on it as unique.* For this

TABLE 2.

Food	Quantity Gm. or Cc.	Water	Protein	Fat	Carbohydrate	Ash	Calories
Bread (per cent.)		35.6	9.3	1.2	52.7	1.2	
	1361.0	484.52	126.87	16.33	717.25	16.33	3,605
Butter (per cent.)		11.	1.	85.		3.	
	213.0	23.43	2.13	180.85		6.39	1,690
Egg (per cent.)		65.	11.7	14.7		1.	
	227.0	147.55	26.56	33.37		2.27	383
Oatmeal (per cent.)		84.5	2.8	0.5	11.05	0.7	
	1106.0	934.57	30.97	5.53	122.21	7.74	695
Banana (per cent.)		75.3	1.3	0.6	22.	0.8	
	85.0	64.03	1.10	0.51	18.71	0.68	86
Chopped beef (per cent.)		67.8	20.9	10.6		1.1	
	397.0	269.16	82.67	42.08		4.37	750
Milk (per cent.)		87.	3.3	4.	5.	0.7	
	2543.0	2212.41	83.92	101.72	127.15	17.80	1,500
Potatoes (b.) (per cent.)		75.5	2.5	0.1	20.9	1.	
	397.0	299.74	9.93	0.40	82.67	3.97	358
Corn (canned) (per cent.)		76.1	2.8	1.2	19.	0.9	
	3.54	2.69	0.10	0.05	0.67	0.03	14
Soda crackers (per cent.)		5.9	9.8	9.1	73.1	2.1	
	142.0	8.38	13.92	12.92	103.80	2.98	600
Oatmeal gruel (per cent.)		91.6	1.2	0.4	6.3	0.5	
	59.2	54.23	0.71	0.24	3.75	0.30	20
Potatoes (c.) (per cent.)		75.1	2.6	3.	17.8	1.5	
	184.0	138.18	3.68	5.52	32.75	2.75	205
Lamb chops (per cent.)		47.6	21.7	29.9		1.3	
	312.0	148.51	67.70	93.29		3.06	1,150
Stewed apple (per cent.)		61.1	0.2	0.8	37.2	0.7	
	99.0	60.49	0.20	0.8	36.83	0.7	145
Beef stew (per cent.)		85.4	4.6	4.3	5.5	1.1	
	227.0	191.65	10.43	9.75	12.47	2.99	185
Coffee cake (per cent.)		21.3	7.1	7.5	63.2	0.9	
	85.0	18.10	6.04	6.38	53.72	0.77	306
Molasses cake (per cent.)		6.2	7.2	8.7	75.7	2.2	
	28.35	1.76	1.94	2.47	21.46	0.62	120
Raw apple (per cent.)		84.6	0.4	0.5	14.2	0.3	
	14.18	12.07	0.06	0.07	2.09	0.04	9
Roast beef (per cent.)		48.2	22.3	28.6		1.3	
	256.0	123.39	57.09	73.22		3.33	702
Cauliflower (per cent.)		92.3	1.8	0.5	4.7	0.7	
	113.0	104.67	2.04	0.57	5.33	0.79	35
Corn-starch pudding (per cent.)		14.		0.1	85.9		
	56.7	7.94		0.06	48.71		200[26]
Boiled beef (per cent.)		38.1	26.2	34.9		0.9	
	198.0	75.61	51.99	69.36		1.79	1,228
		5383.08	581.93	654.77	1389.50		13,986[27]

26. Figures from Jordan's Dietary Studies in Maine State College in 1895, Bull, 37, U. S. Dept. of Agriculture.
27. When computed according to Rübner's factors, total equals 14,163 calories.

4. Klemperer: Klinische Diagnostik.
5. v. Jaksch: Klinische Diagnostik.

* Since writing the above, I find that Dr. Alfred Gordon, in *American Medicine*, Feb. 6, 1904, presents in a paper two cases of myxedema with genuine diabetes mellitus in brothers aged 3 and 4½ years respectively, who are the offspring of neuropathic parents with degenerative tendencies. He reaches conclusions concerning

reason it becomes more than difficult to adequately determine any answer to the questions propounded in the beginning of the paper. There is on record, however, one case, reported by C. A. Ewald,[6] in which a woman fifty-two years old, who had developed a typical myxedema, was cured by the exhibition of thyroid gland extract, and where diabetes of a much milder form than the one I detailed above, developed afterwards. This also became a permanent affection. There was in this case also no doubt as to the affection, the patient having been presented to the Berlin Medical Society, and others, as Ewald remarks, had independently arrived at the same diagnosis.

authenticated case of Ewald which furnished an exception to his theory. Of course that it is not an every day occurrence is freely admitted; yet the possibility of its occurrence must be likewise asseverated, for what has happened once or twice may happen again.

In this case it is only logical to look at both diseases as factors in the condition, but which was the more potent is purely speculative. So far as our knowledge, much enriched in the last few years, of cretinism and analogous conditions goes, the nutritive dyscrasia caused by the lack of thyroid substance in the blood is a profound one. This, in this patient, was ameliorated and decidedly improved by the oral ad-

TABLE 3.

Date	Time	Quantity Cm.³	Sugar %	Sugar Gm.	Quantity in 24 Hrs. Cm.³	Sugar %	Sugar Gm.	Urea Gm.	Total N. Gm.	Acetone	Diacetic Acid	Albumin	Indoxyl	Chlorids	Specific Gravity	Calories Wasted as Nitrogen (a) and Carbohydrate (b)	
Nov. 4	10.30 a.m.	355.0	7.8	27.69	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1033	a) 251.74	
	1.30 p.m.	414.0	7.0	28.98	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031	b) 650.91	
	4 00	295.7	7.81	23.09	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	6 35	236.0	8.5	20.06	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035		
	8.30	236.0	9.25	21.83	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1040		
	4.10 a.m.	679.5	7.24	49.20	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					2128.18	7.46	158.76	6.39	9.83	Trace....	Negative	Negative	Normal..	Normal..	1035		902.65
Nov. 5	8.10	236.0	6.85	20.06	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1036	a) 211	
	11.00	532.0	6.66	35.43	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031	b) 706	
	1.30 p.m.	295.7	7.46	22.05	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
	4.20	473.1	8.19	38.75	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	8.30	295.7	7.25	21.44	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
	11.05	295.7	7.35	21.73	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
					2513.0	6.85	172.14	5.026	8.25	Strong...	Negative	Negative	Normal..	Normal..	1031		917.
Nov. 6	9.50 a.m.	503.0	6.94	34.91	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	a) 363	
	12.05	207.0	7.67	15.88	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	b) 539	
	3.25 p.m.	266.0	7.67	20.34	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1038		
	8.05	295.7	7.93	23.44	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1042		
	4.35 a.m.	414.0	8.25	34.16	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1038		
					1684.57	7 81	131.56	10.12	14.15	Strong...	Negative	Negative	Normal..	Normal..	1038		902.
Nov. 7	8.15	207.0	6.94	14.37	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	a) 190	
	2.00 p.m.	591.5	6.75	39.92	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	b) 680	
	3.55	325.3	6.56	21.14	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	11.55	503.0	8.06	40.54	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1039		
	6.30 a.m.	561.6	8.82	49.53	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1040		
					2187.20	7.57	165.50	4.38	7.42	Negative	Negative	Negative	Normal..	Normal..	1036		870.
Nov. 8	10.00	74.2	7.35	5.45	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1037	a) 209	
	2.45 p.m.	473.1	6.49	30.60	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030	b) 502	
	5.30	325.3	6.57	21.36	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	9.15	591.5	7.04	41.64	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035		
	3.20 a.m.	295.7	6.66	19.69	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					1789.50	6.85	122.58	5.37	8.14	Negative	Negative	Negative	Normal..	Normal..	1032		711.
Nov 9	10.15	295.7	X	X	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	X	a) 273	
	12. 0 m.	325.3	6.09	19.81	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	b) 651	
	2.30 p.m.	440 0	7.14	31.42	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031		
	4.45	414.0	6.57	27.20	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	8.45	473.1	6.00	28.39	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	3.45 a.m.	591.5	7.04	41.64	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
					2539.58	6.25	158.72	7.78	10.67	Strong...	Negative	Negative	Normal..	Normal..	1032		924.
Nov. 10	11.45	591.5	6.41	37.90	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1029	a) 230	
	3.00 p.m.	493.11	7.35	34.77	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	b) 726	
	5.30	385.0	7.57	29.14	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1033		
	8 30	236.0	X	X	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	X		
	11.05	591.5	6.66	39.39	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
Nov. 11	10.30	503.0	5.88	29.58	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					2780.11	6.37	177.09	5.56	8.96	Strong...	Negative	Negative	Normal..	Normal..	1031		956.
	Totals...	.....	....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....6182.

Under these circumstances it seems strange that Lorand, who in bibliography quotes Ewald, and Bettman,[7] who cites Ewald's case, should make the statement that in true myxedema, diabetes was a rare if ever-noticed occurrence; in other words, casting a doubt on the well ministration of thyroid extract tablets. As pointed out before when the additional abnormal state of diabetes mellitus supervened, the child, who had because of progressive weakness not received any further thyroid treatment, nevertheless immediately not only regained all the territory lost, but even gained new so far as disappearance of symptoms and increase of intellect were concerned.

How far, then, does the occurrence of diabetes mellitus and its train of causes and effects in this cretin condition explain the working of thyroid extract in the uncomplicated myxedematous state? Is it not a fact that to a certain extent the improvement in that interesting condition following therapeusis is due to the absorption and excretion of the mucin deposited in the

the etiology of both diseases very similar to mine, but I can not share his optimistic prognosis even for the complication of both diseases. Thyroid extract in both of his patients showed a very favorable influence on the conjoined morbid conditions, and even earlier on the diabetes than on the myxedema, thus explaining with a great degree of certainty the rôle of the thyroid gland in the as yet unknown pathologic metabolism, which is manifested in a group of symptoms called diabetes mellitus. He thinks it highly probable that independently of the digestive functions there is a special internal secretion of the pancreas which is at fault.

6. Ewald: Nothnagel's Handbuch, vol. xxii, 1896; Berl. klin. Woch., 1895, No. 2.

7. Bettman: Berliner klin. Woch., June, 1897.

skin and the various connective tissue recesses by the use of the thyroid gland's secretion? Is that therefore its real function when we administer it therapeutically? Was not nature in this case perhaps performing the same duty that we with thyroid juice strive to do, namely, removing the superfluous mucin material that the body usually uses up in other ways, by superinducing a diabetes mellitus, one of whose main effects on the system is the increased loss of all sorts of tissue and tissue food by excretion?

In his recent monograph Lorand[8] of Karlsbad seeks to expound this interrelation of diabetes and lesions and diseases of the ductless glands (Blutgefässdrüsen) and quite ably shows that so far as symptoms, findings at necropsy, etc., go, that diabetes mellitus, exophthalmic goiter and acromegaly are dyscrasiæ based on the same causation, one often running into the other or exhibiting similar clinical features in the abstract. His argument is powerful and well backed up by many able authorities, but although no doubt true in the main has this case as its exception.

TABLE 4.

	Income	Outgo		Gain
		In Urine	In Feces	
Carbohydrates	1389.50 gm. 5697 Cal.	1066.35 gm. 4372 Cal.	185.31 gm. 760 Cal.	137.84 gm. 565 Cal.
Protein	581.93 gm. 2385 Cal.	421.37 gm. 1728 Cal.	124.75 gm. 512 Cal.	35.81 gm. 145 Cal.

He says: "It is a fact that sometimes in the course of diabetes mellitus, Basedow's disease has been observed as a hyperthyroiditis (Hartman, Grube, etc.). Now the question arises, are the lesions in the thyroids or adrenals degenerative, i. e., a decreased or rather an increased activity? We would not hesitate to decide for the latter, since in atrophic conditions of these glands (as in myxedema and Addison's disease) a glycosuria is extraordinarily rare, if it has ever been observed. On the contrary glycosuria has been frequently observed in diametrically the opposite condition to myxedema, Basedow's disease, and besides very frequently subsequent to thyroid feeding."

Now there never was the least shadow of a doubt as to the diagnosis of the condition preceding the diabetes mellitus in this case. If ever cretinism was typical, in symptoms and response to treatment, this was and that the diabetes was not due to an induced hyperthyroiditis is to my mind equally established. First because the child had preliminary to the supervention of the diabetes mellitus received no thyroid extract for the period of four weeks and secondly, the fact that the ingestion of thyroid was at all times very small in quantity, and thirdly, resumption of the thyroid feeding did not increase excretion of sugar, but served only to run the child further down in weight. That there was complete athyria of course only necropsy, which was refused, would have proven; but palpation of the throat was, because he was so thin, feasible to such an extent that the cartilages of the larynx and each individual tracheal ring, the separate muscles, felt as cords, could be mapped out down to the suprasternal notch and at no place was there any thyroid or any gland tissue palpable. Under these circumstances Lorand's theory as to the genesis of diabetes needs modification. So that although the facts he adduces to support his theory are all true and powerful arguments, yet we must suggest that the last word as to the exact interrelation of the various dyscrasiæ is even now unspoken, and we still stand rather on the knowledge adduced by Pineles[9] "that acromegaly, myxedema, cretinism, Basedow's disease and in some cases diabetes mellitus represent diseases of glands (Blutgefässdrüsen) in the course of which anatomic or functional disturbances in other glands supervene. There appears accordingly to be some sort of anatomic and physiologic interrelation between these glands, so that clinically when one gland is diseased, certain vital symptoms referable to disturbances of function in another gland are observable." In other words, the exact conditions are still unknown.

As a condition without such a complication, diabetes mellitus in a child is not frequent. In the literature, so far as I could find, the number of cases does not exceed six hundred; Külz reporting the collection of 111 cases; Redon,[10] 32; Stern,[11] 117, including 21 already discussed by Külz;[12] Wegeli,[13] 108 cases; and Saundby, 159 cases.

Various other writers, Senator,[14] Baginsky,[15] Niedergesäss[16] and Günther[17] deal with various phases of diabetes mellitus in children, but as was pointed out, nowhere are the two conditions detailed above conjoined in one patient. In fact, Scholz[18] in experiments was unable by the administration of thyroid preparations to produce a single case of even alimentary glycosuria in 100 cases of cretinism. That the use of thyroid preparations in other conditions have caused both alimentary and even permanent glycosuria, many careful investigators have affirmed and reported. Bettman[7] reported the results of experimental administration of it to 20 people who were under observation for various ailments, and in 11 (or 55 per cent.) he was enabled to produce a temporary glycosuria, which, however, totally disappeared on ceasing the exhibition of the remedy. So that he too points out its rarity in myxedema following thyroid feeding, while it is comparatively frequent as a follower of exophthalmic goiter, in both temporary and permanent form.

So, if we study the literature for this case from the viewpoint of diabetes alone, it is simply for the reason that I have been unable to find that anything else bearing on the coincidence has thus far been written. But even so, the results of the study of such literature is very interesting and instructive.

Although diabetes mellitus in a child is infrequent, it is by no means so rare as was formerly thought and taught. Sex makes but slight difference in the occurrence of the disease and although Günther[17] points out the greater frequency of diabetes in female children, Saundby in his collection found the sexes about equal in numbers.

PATHOLOGIC ANATOMY.

This field also offers nothing conclusive. Great as are the strides that have been made in unearthing the truths about such nutritive disturbances as myxedema,

8. Die Entstehung d. Zuckerkrankheit u. ihre Beziehungen z. d. Veränderungen d. Blutgefässdrüsen.

9. Pineles: Volkmann's klin. Vorträge, 1899, p. 242.
10. Redon: Comptes rendus Soc. de Biologie, 1877, Paris, 1879, 6me, vol. iv, p. 175; Du Diabète mell. chez. l'enfant, Thèse de Paris, 1878.
11. Stern: Arch. f. Kinderheilk., vol. ii, 1890, p. 81.
12. Külz: Gerhardt's Handbuch d. Kinderkrankheiten, vol. iii, Tübingen, 1878.
13. Wegeli: Arch. f. Kinderheilk., vol. xix, 1896, pp. 1-65.
14. Senator: Ziemssen's Cyclopedia, vol. xvi, p. 898.
15. Baginsky: Arch. f. Kinderheilk., vol. xxii, pp. 257-265.
16. Niedergesäss: Diabetes Mellitus Infantum, Diss., Berlin, 1873.
17. Günther: Inaugural Dissertation, Marburg, 1874.
18. Scholz: Verhandl. d. Inn. Med., 1902, p. 20.

athyria, infantilism, acromegaly, still the last words are far from spoken. And this is most true with the condition known as diabetes mellitus. Apart from the fact of sugar being found in the urine, together with the increase of other excretory products, no one symptom or group of symptoms points out to us where to hunt exclusively for the causative lesion. Theorizing does not help us to any extent, and postmortems themselves are unsatisfactory, for many times we can find no assignable cause whatever. That head injuries, operative procedures and traumata to other parts of the body may cause glycosuria is a well-known fact.[19] So, too, it can be of very small value to know that there were found at various necropsies of children dead with diabetes mellitus—free fat globules in the blood, fatty degeneration of the kidney epithelium, parenchymatous nephritis, all, it seems to me, effects rather than causes of diabetes; there were also diminution in size of the pancreas, an atrophy, or again no changes at all in the pancreas.

Such being the state of our knowledge, it makes but slight difference what theory we assume for explaining the condition we know as diabetes mellitus. Even its physiology is not settled as yet, but its pathology is only empiric. Its etiology under these circumstances is not by any means proven. Stern[11] in his article lays it to heredity of a diabetic or a neuropathic condition, trauma, and too free ingestion of saccharin foodstuffs; while Bergesio[20] ascribes it to hydrocephalus, head traumata, heredity and dysentery. In my case the too free ingestion of grapes certainly seemed the immediate cause of the condition. Of course, to a certain extent, the neuropathic tendency is also assignable from the tendency on the paternal side.

PROGNOSIS.

The prognosis in any event is very grave always, and as Senator[14] puts it, "the younger the patients are the more malignant and the more rapid in general is the course;" and as Stern[11] has pointed out even if for many years sugar has disappeared from the urine, most of the patients die from recurrence of the malady. So far as the duration of the disease is concerned, the prognosis is far from favorable. In 32 diabetic children Redon[10] found two and one-half years the longest duration of the disease; and Külz[12] found that of 46 diabetic children, 16 died in less than one-quarter year; 8 in one-quarter year; 6 in one-half year; 5 in one year; 6 in two years; 4 in three years; and one in four years. So that more than half ran their course in three months or less. "It is probable," Senator says, "that in acute cases, where from the apparent beginning of the disease until death, but a few weeks or even days elapse, which for that matter occurs almost without exception in children or young persons, the excretion of sugar and perhaps the other derangements also have existed for a long time unobserved, until a sudden change in the patient's health arrested the attention, so that in these cases, as in most others, an accurate specification of the time can not be made. In a case of Becquerel, the disease in a boy nine years old, would seem to have lasted but six days."

SYMPTOMATOLOGY.

It is not especially necessary to enter into the symptomatology of the disease in childhood, as it does not differ materially from those symptoms seen in adult life. There are a number of phases that merit consideration, however.

Sugar in the Urine.—This most important symptom of the disease may vary from a minute but constantly increasing amount to an almost incredible quantity. Even a small percentage, one or two, when measured by the energy wasted and figured in calories, is an enormous drain, so that when such loss as Senator speaks of in a child of twelve years, and weighing 17 kgm., who passed between 358 to 570 gm. of sugar daily, is taken into consideration we can see the disadvantage nature labors under in trying to restore to normal, functions so perverted. So, too, the amounts passed by my case, ranging from 120 to 180 gm. per day, and which in the beginning of the disease far exceeded this quantity, (at one time passing 4 liters of urine containing 12 per cent. of sugar, equal to 480 gm. in twenty-four hours) show an enormous loss of fuel value to the system.

Coincident with this, Senator points out the increased output of nitrogen, as urea. "The quantity voided in twenty-four hours may amount to twice or thrice the normal, so that in adults a discharge of 100 gm. or more (142.0 gm. in a case of Dickenson's) has been repeatedly ascertained." This I was unable to verify in my patient, for if anything, with a weight of 14 kgm., he was passing less urea than was normal for such weight and age.

So far as the bases in the urine are concerned, their increase or decrease are as yet not assignable any clinical value. It is only of interest that Neubauer[21] "saw in the urine of a diabetic child six years old, as the mean of nine days, a daily excretion of 0.71 gm. of calcium phosphate (about double the normal quantity for an adult) and 0.388 gm. phosphate of magnesia, (the normal amount in the adult being about 0.6 gm.)"

The presence of acetone and diacetic acid are of more and graver prognostic importance. The former, acetone, is of less moment than the latter, for many if not most saccharin urines contain it. Its presence causes the peculiar aroma of diabetic urine, and in larger quantities the causation of the acetonemia, found at the time of diabetic coma, is sought. Petters[22] first demonstrated its presence in diabetic urine. Rupstein and later Külz[12] likewise found alcohol in the urine of a diabetic, and that too in a specimen fresh from the bladder."

I can not accept that the presence of acetone in the urine is prognostically a rapidly fatal sign, for at all times it was possible to demonstrate acetone in my patient's urine, and instead of losing he really gained ground. As for diacetic acid, even very careful testing failed to give me the typical reaction at any time, except faintly just before death.

As for albumin of any sort, at no time from the beginning of the disease until death have I been able to demonstrate its presence to my satisfaction, and microscopic examination has thus far failed to show in standing or centrifuged urine any of the typical tubular casts described by Külz[12] and by Sandmeyer[23] and on

19. Reimer (Jahrb. f. Kinderheilk., X-1-4, p. 1 and p. 219, 1876) reports a case of diabetes mellitus in a 7-year-old boy, caused by a giant-celled glioma on the floor of the fourth ventricle. The symptoms were localized cephalalgia, violent vertigo, apathy, anorexia, but great increase in thirst, with the consequent excretion of strongly saccharin urine (6-8 pounds of specific gravity 1036). Only once before this had a swelling been found at this site (by Rilliet and Barthez, Maladies des Enfants, vol. iii, p. 555), but there was no mention of any glycosuria.

20. Bergesio: Jahrbuch f. Kinderheilk., N. F., vol. xxiii, 1886, p. 217.

21. Jour. f. prakt. Chemie, vol. lxvii, p. 65.

22. Prag. Vjhrsschr., 1885, vol. lxiv, p. 2, and 1857, vol. lv, p. 81.

23. Sandmeyer: Verhandl. d. Xten. Congress f. inn. Med., Wiesbaden, 1891, p. 345.

whose occurrence during the prodromal phenomena of coma and during it, so much stress is laid. They are described as short, mainly hyaline or even granular casts, which appeared suddenly in up to that time cast-free urine in very great numbers. They were not missed in any single case of coma examined. No casts of any sort were demonstrable in my case, except a few granular ones just before death.

So much for the urine. Other symptoms are identical with those seen in the adult. The child was at all times so ravenously hungry that he would steal any and everything in the line of food, even a cake of compressed yeast.

As will be seen by Table 2 he consumed large quantities of fluids per day, but had learned to curb his thirst enough, so that when taken out he could go for many hours (six to ten) without a drop, but making up for it on his return. So, too, the bladder was under control. Where formerly he was almost constantly going to empty it, he latterly controlled it quite well for half a day at a time if away from home.

As in the adult diabetic the metabolic processes following a full meal, caused a cerebral ischemia and a great drowsiness supervened. Even at the end of a full meal his head would go down on his arms and he would fall into a sound sleep. Contrary to the findings of Blau,[24] who says that in the progress of the disease diabetics become more and more indolent and averse to mental employment, this case was if anything much brighter than ever before. Now when we consider the fact that cretinoid conditions are not conducive to mental activity and this same effect follows diabetes mellitus, again the question, how far the coincidence of the two in the same personage, the one tended to modify the other, assumes further interest and force.

Of interest in this same field is the condition of the mouth and teeth. The poor, uneven and delayed eruption of the teeth in cretins is a matter of common knowledge; this was well portrayed in the case discussed. When finally, however, thyroid extract was administered the teeth erupted very fast. However, the diabetes supervened, and immediately the acid condition of the mouth, and the occurrence of thrush tended to destroy the good done. Alkaline washes, however, removed this tendency and dental attention served to put the mouth in fair condition and remove the caries which caused frequent suffering to the uncomplaining little patient.

At no time had he been a sufferer from the pyodermatosis or of any trouble of an embolic nature which so frequently accompany diabetes of an aggravated form in the adult. So also no pruritus occurred; to be explained I suppose by the need of cleanliness inculcated on the child's attendants.

So far as treatment is concerned, he received scarcely any medicine. It was found that the action of codein was objectionable; bichlorid of mercury gave no results at all, even when exhibited for a month; cod-liver oil became distasteful, and gave no return commensurate with the difficulty of administration; so that the patient, besides an occasional cathartic, took nothing but one of the newer hemoglobin preparations, which, however, seemed to serve a very good purpose. Omitting it for only a few days, the loss was immediately discernible, and a few days elapsed after its resumption before the lost ground was regained. As he held his own with it and the fairly modified diet, no change was instituted, except that as a result of the experiments the mother was advised to give him more freely of meats, as his protein income did not seem quite adequate to his needs.

In this connection it is interesting to note that, although the dietaries of Voit, Moleshott, Wolff and Playfair call for from 3,032 to 3,160 calories daily for a man at moderate work, and which Atwater[25] places at 125 gm. of protein and 3,500 calories of energy for the American dietary, that this patient, even under the stress of these dyscrasiæ, consumed only the amount of food usually figured for a child of his age (83 gm. of protein and 2,000 calories of energy per day), although, of course, as seen by Table 4, he lost the greater part of it again.

SUMMARY.

Before closing this paper and formulating the conclusions warranted from the observation of this single case, it will be profitable to revert once more to the speculative question of the interrelation of these diseases.

After Ord, Gull, Murray[26] and Horsley had perfected their theories and technic in the production of athyria in animals, the knowledge of the physiologic functions of not only the thyroid but of the other glandular structures, the hypophysis cerebri, thymus, adrenals, and last, but not least, the pancreas, was quickly and thoroughly deepened. The French physicians have continued their studies on the lesions of the pituitary gland and the consequent acromegaly; English physicians have presented numberless cases of Basedow's or Grave's disease and myxedema, and justly insisted on the etiologic factors being sought respectively in hyperthyroidism and hypothyroidism, although their surgical aspects assumed greatest proportions in German hands; and it was left for American investigators to probe the pancreas and its lesions as causative of diabetes mellitus.

Recent work on the interrelation of these various functions and their disorders offers nothing conclusive as yet, so that one theory has at present as much or as little *raison d'être* as another, and we must only guard against drawing the outlines too sharply, for an exception here and a criticism there may change the face of the matter very shortly. Under these conditions it may, perhaps, be well to see just what the question covers in this case.

We have seen a case which, in its sixth year, presents the unmistakable symptoms of an infantile myxedema. There is no doubt as to the condition, for besides the typical general habits, the *sine qua non*, the absence of the thyroid gland was as plainly demonstrable as it could be *in vivo*. Of course, whether this was preceded by a fetal thyroiditis, as some writers have affirmed such cases are, must be purely problematical; all we know is that great nervousness and mental strain accompanied the gestation, and it is feasible to suppose that the maternal thyroid and its use, influenced somehow the thyroid growth and function in the fetus. This point is purely theoretical and not strongly defensible. In any event, when the child was born, it was puny, with ill-developed facial expression, and was pronounced by the attendant physician, idiotic.

24. Practice of Medicine, vol. iv.

25. Atwater and Bryant: The Chemical Composition of American Food Materials, Bull. 28, U. S. Dept. Agriculture.

26. Murray: Diseases of the Thyroid Gland, Twentieth Century Practice of Medicine, vol. iv.

Frequent gastric disturbances supervened, although as was said, the child was breastfed. After weaning, however, when the supply of thyroid extract he got from his mother's milk was cut off, the child immediately, without any intercurrent illness, infectious or referable to the thyroid, developed a typical sporadic cretin state.

After a number of years the appropriate treatment was instituted. Small, very gradually increased dosage was employed; the mother carefully instructed to watch the least symptom of overdosage. Frequent intermissions were ordered to prevent such occurrence. The child was several times presented to the classes at the Postgraduate, and the good effect of the thyroid gland extract emphasized. At this point the child was put into my care, inasmuch as the mother felt the trip to the city too irksome and embarrassing for herself and child, and she desired treatment at her own home. She had begun to let up on the administration of thyroid, alarmed by the child's progressive emaciation, although she had been informed that this tendency prevailed when thyroid was given. At that time, as I had charge of two other cases of a similar nature, one a typical cretin, in whose urine I had found an almost pure deposit of uric-acid crystals, in such numbers and such beautiful formation, as I had ever seen before, I obtained a specimen from this patient also to determine if the same condition prevailed here. The urine at that time was normal in every respect and contained no sugar. To continue the good accomplished, small doses of thyroid tablets (0.2 gm. pro die) were administered, with frequent but unnecessary intermissions, as at no time did any tachycardia, vomiting or other hyperthyroid symptom develop.

Now, because the supply had run out, the child received no thyroid for a period of four weeks, and at the end of that time is presented with a violent glycosuria. However, the interesting discovery is made that in contrast to the accepted pictures of both athyria and diabetes mellitus, the patient presented less hebetude, is brighter, more active, his growth was noticeable, and, in fact, the supervention of the one condition served to relieve the other. Whether or not we had a vicarious action of some other gland must, of course, be purely speculative; as *a priori* must also be the condition of the other glands. We might infer an increased adrenal activity from the fact of a very small loss of blood during extraction of carious teeth; certainly we know that both his testicles were atrophied a few months before death.

But it is not warranted to go so far as Lorand[8] does and the broader statement of Pineles[9] must still hold good, and besides, as Ewald[6] and, I hope, I have shown, diabetes mellitus may follow myxedema, whether you ascribe it to thyroid feeding or not. Of course, the contention that without such feeding diabetes has not been seen after myxedema, must also be admitted, as I can find no such case in an exhaustive search of literature; while it is equally true that in the administration of thyroid extract in dermatologic and general practice in cases where no lesion of the gland was demonstrable, temporary glycosuria supervened.

115 Beech Street.

Administration of Digitalis.—There is no drug which requires a more intimate knowledge and appreciation of existing pathologic conditions for its successful administration than digitalis, writes William F. Clemsha. The more carefully and thoughtfully we give it, the more uniform and satisfactory will be our results.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.*

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The contents of this paper may be divided as follows:

1. A consideration of the various operative methods of approaching and of dealing with the ganglion.
2. Further points referable to an operative procedure heretofore described.
3. Histories of twenty personal cases thus operated on.
4. A discussion of the surgical complications and sequelæ of these cases.
5. Notes on the distribution and function of the fifth nerve deducted from postoperative observations.
6. Afterword: pathology.

Neuralgia Quinti Major. (Tic douloureux. Epileptiform neuralgia.) This form of neuralgia has been placed in a group apart owing to the marked similarity that one case bears to another both in course and symptoms. In the earliest stages, each case appears to be one of simple neuralgia, and under this impression relief has been sought in removal of teeth or in other operative procedures. At last the full picture of this hideous disease unrolls, varying in unessential details from the classical type.

In a recent medical treatise[1] thus is introduced the section on that form of trigeminal neuralgia which, unlike the other varieties, the minor neuralgias of the fifth nerve, is an affliction demanding surgical intervention, and for the relief of which the removal of the semilunar ganglion (Gasser) must ultimately be contemplated. It is, perhaps, deserving of emphasis, therefore, at the start, that from this group of cases are excluded the comparatively simple neuralgias arising in the trigeminal territory; those which are incidental to some general state of bodily ill health; those reflexly occasioned by some local disease; those ordinarily confined to one or another of the peripheral branches of the trigeminal nerve, all of which are usually amenable to therapeutic measures[2] other than surgical or, at the outside, to minor operative procedures.

Barely thirteen years have elapsed since Horsley and Macewen,[3] quite independently, and, so far as I am aware, for the first time, attempted through a high temporal opening to divide the trigeminal nerve in two cases of tic douloureux. Both resulted fatally, an

* Presented by invitation at a meeting of the Montreal Medical Society, 1904.

1. Head: Trigeminal Neuralgia. Allbutt's System of Medicine, 1899, vol. vi, p. 728.

2. At times very simple measures indeed, of which there is an interesting historical illustration. In one of the old numbers of the European Magazine are reprinted a series of urgent letters which John Locke, the philosopher-physician, wrote from Paris to Mapletoft and Sydenham asking for advice in the treatment of the distinguished patient, the Countess of Northumberland, whom he was attending at the French Court. Owing to "the inclemency of the weather," Locke had refrained from following his first inclination of opening her ladyship's bowels. With a moderation in the temperature and before Sydenham's reply could have been received a purge was administered and the patient's neuralgia disappeared. There is an amusing reference by Lord King in an early number of The Lancet to this correspondence, which comments not only on what must have been the inconveniences of Parisian life in the latter part of the seventeenth century, but also on Locke's clear statement of the case and his skillful treatment.

3. Victor Horsley: An address on the Surgical Treatment of Trigeminal Neuralgia, The Practitioner, 1900, vol. lxv, p. 251.

event commonly ascribed to the undue severity of the intradural method followed in each instance. A few years later, Professor Rose of Kings College boldly essayed to attack the ganglion in a major case of the same malady by primarily excising the superior maxilla, by trephining the base of the skull beneath the ganglion, and by destroying the structure, thus blindly exposed, with the curette. From its successful outcome this pioneer effort not only is of historical import, but will stand a lasting commentary on the fearful nature of the affliction which would justify such an extreme procedure undertaken for its relief. From that time to the present many modifications of the operation have been proposed and carried out, all of them having their advocates, all of them having for their objective point the trigeminal neurectomy or removal of the ganglion, so that, so far as the operation itself is concerned, they may all be considered as variations of Horsley's or of Rose's appalling procedure.

In all of these modifications there are two essential factors to be considered: First, the method of approaching the ganglion; second, the manner of performing the neurectomy or of dealing with the structure when it has been brought into view.

METHOD OF APPROACHING THE GANGLION.

The methods of approach may be conveniently classified into three groups: the low or pterygomaxillary route, of which Rose's original operation may be considered the extreme type; the high or temporal route, which is represented by the Horsley and Hartley-Krause operation; and lastly, the direct transzygomatic or sphenoidal route—below, above or through the region bridged by the zygomatic arch.

The first of these methods, through the pterygoid fossa, although considerably altered and improved in details,[4] has never received wide acceptation. The high temporal operation, on the other hand, has almost completely and very properly superseded it, and the larger number of successful cases, both in this country and abroad, have heretofore been carried out on the lines which Hartley and Krause almost simultaneously laid down twelve years ago. Experience with the operative difficulties of the approach, over which hemorrhage, in either of these methods, holds chief sway, the consideration also of the postoperative deformities consequent on either method has led to modifications, the general tendency of which has been to make the low operation higher and the high lower; a tendency in other words toward a more direct or transzygomatic route. Coehlo,[5] in the report of his first operative case, called attention to a modification of the high operation which involved division of the zygoma. Lexer[6] has so circumscribed and lowered the Hartley-Krause opening, with which in its typical form he began his successful series of 15 cases in von Bergmann's clinic, that the details of his method have come to differ but slightly, and chiefly in the management of the meningeal artery, from those which I outlined in 1900.[7] The anatomic studies by Dollinger and Bartlett have shown that the meningeal artery, when this method is employed, in the great majority of cases need interfere in no way with the exposure of the ganglion. Frazier[8] has followed this direct infra-arterial approach in his successful cases of division of the sensory root and many others have been led to adopt procedures which correspondingly are on a more horizontal plane than the older method.

In like fashion, the low or pterygoid operation, has undergone modifications tending to make it more direct. Thus Jacob, Sapejko, Juvara, Quénu and Sébileau, with others, chiefly of the French school, with considerable variation in the incision and in other details, have used a method of approach via the zygomatic region, which, though much more direct than the Rose-Andrews method, nevertheless retains many of the undesirable features of the low pterygoid route, in which the nerves are sought at their exit from the base of the skull, and thus serve as guides to the situation of the ganglion.[9]

MANNER OF PERFORMING THE NEURECTOMY.

There will be found almost as many variations in the manner of dealing with the ganglion when it has been brought into view as there are in the ways of approach. By the pterygoid route it is difficult to conceive of a clean, dry exposure, and the fact that its advocates describe ways of tearing out the ganglion with small hooks and that blind curettage of the supposed seat of the *Cavum Meckelii* has often been resorted to, shows how uncertain must be the actual completeness of the neurectomy. Even when the low approach has been modified to the extent which Juvara's procedure typifies, it is evident from the description, which implies that the ganglion is uprooted by dragging on the second and third branches, that the structure can not be entirely removed. We owe much to Dr. Tiffany for the emphasis which he has laid on "known" versus "attempted" extirpation, and to Dr. Keen for his frankness in acknowledging the failure to find any ganglionic elements in the tissue removed from his first two cases of supposed enucleation. Lexer, in his careful tabulation of the 200 cases which he has gathered from the literature has placed them in two groups—those in which extirpation was accomplished or attempted, and those in which the method rendered this impossible. The majority of the latter cases were operations performed through the pterygoid route.

4. Rose: "The Lettsonian Lectures," the Lancet, 1892, vol. 1, p. 295. Instead of the superior maxilla, in the modified operation a portion of the ramus of the inferior maxilla is removed; thus allowing of a low lateral instead of a low anterior approach. The latter procedure was first carried out by Prof. Novaro of Genoa.

5. Coehlo: Revue de Chirurgie, 1899.

6. E. Lexer: Archiv für klin. Chirurgie, 1902, vol. lxv, p. 843.

7. THE JOURNAL, April 28, 1900, p. 1035.

8. Frazier: University of Pennsylvania Med. Bull., December, 1901.

9. Of all these methods that described by Juvara has, I think, most to commend it, and though evolved from the low method, does not differ greatly from that of Lexer or myself similarly evolved as improvements on the high method. His procedure, however, remains somewhat too low; the facial supply to the orbicularis would be sacrificed by his incision and lagophthalmos would almost necessarily result; a sequel which possibly had been overlooked or not taken into account, since at the time of his description Juvara had practiced the operation on the cadaver alone. The extracranial dissection also is carried unnecessarily far, as are those above mentioned, namely, to the second and third divisions at their emergence from the skull, the floor of the temporal fossa alone having been removed. Jacob's operation also was advanced after anatomic studies alone, and when reported had not been put to practical test. He goes so far as to remove the outer wall of the orbit in order to expose the superior maxillary nerve, which then serves as a guide to the ganglion. There are other approaches more difficult to classify, thus, Doyen using a sickle-shaped incision, turns back a large bone flap from the high temporal region, resects the zygoma and coronary process of the inferior maxilla, ligates the internal maxillary artery and rongeurs away the base of the temporal fossa as far as the ganglion. Although the operation is begun as a high temporal one, the ganglion is finally approached via the low pterygoid route, and so ends with all the difficulties and disadvantages of the latter procedure. He designates it, nevertheless, a *"procédé temporo-sphénoidal."* I know of no followers of this method. Two out of his first three cases succumbed to the operation, and it is generally condemned. Poirier uses a similarly complicated approach.

In the earlier years the originators and all others who used the high temporal, or typical Hartley-Krause method, as the communications state, or as the post-operative study of the resulting anesthesia has made clear, satisfied themselves with the partial removal of the lower portion of the ganglion or even with the intracranial division of the *N. maxillaris* and *N. mandibularia,* oftentimes operating at two sittings with a few days interval. Some especially experienced and expert operators, led by the example of Krause, Keen, and Horsley, have subsequently been successful in removing the ganglion *in toto* by this exposure. It can rarely be a simple matter, however. The partial removal of the lower portion of the ganglion, furthermore, although it doubtless may cure a certain number of cases, must be criticized for several reasons. Although in many instances, even of severe neuralgia, symptoms referable to the ophthalmic region may be comparatively slight, it nevertheless sooner or later becomes involved in the disease, and to leave it courts a certainty of discomfort and a probability of pain in the supraorbital region. In two of my cases I was unable to extirpate more than the lower two-thirds of the ganglion. Both of these cases, after some months, have had a partial return of sensation in the cutaneous distribution of the ophthalmic nerve, with more or less attendant discomfort which the total extirpation cases have never shown. Again, some cases are primarily supraorbital in origin, with secondary involvement of the second and third divisions (six of my cases were such), and in these the fractional extirpation would necessarily be insufficient so far as permanent and complete relief is concerned. A partial extirpation, indeed, has been known to aggravate, in the region of the remaining and more or less traumatized first division, symptoms which before were relatively insignificant, although there may have been evidence that the disease had extended to this portion of the ganglion.

Recently Dr. Abbe has advocated a procedure which has for its object the simple intracranial section of the maxillary and mandibular divisions, with the interposition of a piece of rubber protective between the ends of the rami thus severed. Leaving aside the probability that in all severe cases of tic douloureux the ganglion cells giving origin to the *N. ophthalmicus* are likewise involved, it is difficult to understand how this procedure is in any way superior, or promises any greater permanence of relief, than a simple extracranial section; and it is hardly to be considered a Gasserian ganglion operation. Indeed, it probably would make a subsequent operation on the ganglion or on the *N. trigeminus,* should one be demanded, more difficult, and would seem to have less in its favor except ease of performance, than other and extracranial sections of the peripheral trunks. It must be acknowledged, however, that many of the partial operations have an extraordinary effect in inhibiting the transmission of painful impulses, and it is perhaps unjust to criticize Dr. Abbe's proposal without knowledge of his late results. One is inclined, however, to agree fully with Lexer when he says: *"In anbetracht der Gefahren der Operation halte ich es für einen grossen Fehler, das Ganglion wegen Neuralgia in einem oder in zwei Aesten aufzusuchen, auch wenn es mit der Absicht geschiet, es nur unvollkommen herauszunehmen. Krause hat deutlich die richtige Forderung gestellt, dass das ganze Ganglion entfernt werden müsse, sobald überhaupt das intracranielle Vorgehen angezeigt sei."*

The same criticism and the same acknowledgment must be made in regard to a further manner of treating the ganglion after its exposure. Ferrier, in 1890, during a discussion of Rose's operative procedure, suggested on physiologic grounds the possibility that a simple section of the sensory root might answer the same purpose as the destruction or removal of the ganglion itself. Sir Victor Horsley, in his first operation by an intradural method through the temporal route, essayed to carry out this proposal, unfortunately, with a lethal result. Dr. Spiller,[10] in 1898, and two years later Dr. Barker,[11] in a report on the histology of some Gasserian ganglia, again proposed this as possibly the most rational operation. Since then Dr. Frazier, at Spiller's suggestion, has successfully carried out the procedure.[12]

It is possible, should there prove to be a permanent abolition of afferent impulses from the trigeminal area of their patients, that the clinical evidence thereby gained may, as is not infrequently the case, decide a question which experimental physiology has left unsolved, and it is a great satisfaction to know that by the combination of experimental and clinical evidence they have set themselves to determine this point. Conclusive proof as yet is lacking, however, as to whether there is any regeneration centralward after the division of the sensory fibers proximal to a dorsal-root ganglion. Experimental evidence is conflicting, the observations of some[13] favoring such a central regeneration, and unless this view becomes completely overthrown extirpation of the ganglion with all of its cells, can be the only certain method of permanently interrupting the transmission of all sensory impulses.

It is to be borne in mind also that, in all complete extirpations, the trigeminal root is removed together with the ganglion, and that not infrequently, when it has been impossible, for me at least, to expose the root, as would be necessary for its division, it will be extracted *in toto* when the freed ganglion is rotated out. Cases of easy access to the root are usually those of comparatively easy ganglion extirpation.

There is one reason, however, which, so far as I am aware, has not been sufficiently emphasized, and which, rather than ease of performance, would serve to make division of the *N. trigeminus* central to the ganglion preferable to extirpation of the structure itself. This concerns the restoration of motor function. In the extirpation procedure it is an anatomic impossibility to separate from the lower surface of the ganglion the underlying, obliquely placed and closely adherent motor branch of the nerve. Hence, if the extirpation is total, this means the removal of from 2 to 3 cm. of the latter, rendering reunion most improbable. In two of my long-standing cases of extirpation I have found evidence of a return of voluntary motion in the masseter and pterygoids, not, however, in the temporal. This, however, must be very exceptional, as it does not seem to have been observed by others. In the operation for division of the trigeminal root, should this prove, as it is to be hoped, sufficient to permanently shut off afferent impulses by way of the sensory division (*portio major*),

10. Spiller: The Amer. Jour. of the Med. Sciences, 1898, p. 532.
11. Barker: Protocols of Microscopic Examination of Several Gasserian Ganglia, THE JOURNAL A. M. A., May 5, 1900, p. 1093.
12. Spiller and Frazier: The Division of the Sensory Root of the Trigeminus for the Relief of Tic Douloureux, etc., Univ. of Penn. Med. Bulletin, 1901, vol. xiv, p. 34.
13. Baer, Dawson and Marshall: Regeneration of the Dorsal Root Fibers of the Second Cervical Nerve Within the Spinal Cord, Jour. of Exper. Med., 1899, vol. iii, No. 1.

the same will not be true for efferent impulses by way of the motor root (*portio minor*), since regeneration here with reunion of the nerve in case of simple section will almost certainly take place. Spiller and Frazier have suggested the possibility and have emphasized the importance of avoiding the motor root in the operation, doubtless a very difficult procedure, and one which so far as ultimate results are concerned, should be unessential. Preservation of the motor supply to the muscles of mastication would be well worthy of consideration for two reasons: one a cosmetic reason,[14] since the chief postoperative deformity is due to a somewhat obtrusive flattening of the face from the atrophy of the temporal and masseter muscles; the other, a remotely practical reason, since, if by any procedure whatever, power of movement may be retained in the masticatory muscles of the side operated on, it would be possible in those unfortunates in whom tic subsequently appears on the opposite side, to carry out, what is now impossible, a bilateral operation. Involvement of the opposite side, however, is a very rare sequence, and has occurred in only one or two instances; almost as rare, indeed, as the subsequent involvement of another posterior-root ganglion in a malady of a different sort—herpes zoster.

All this discussion, it must be remembered, hinges on the still unproved dictum that no central regeneration allowing of the transmission of sensory impulses will occur after the section of a sensory nerve root proximal to its dorsal root ganglion.[15]

Thus efforts to destroy the ganglion or to remove it piecemeal; simple section intracranially of the second and third divisions with or without removal of the adjoining portion of the ganglion; and section of the trigeminus proximal to the structure, are all either undesirable procedures, or ones which, for the present, at least, stand on debatable ground. Total extirpation alone remains free from criticism, or would, did the anatomic site of the ganglion enable one by any method of approach to remove it with ease. It may be said that, so far as we know to-day, the certainty of total and of permanent relief from pain stands in direct relation to the totality of the extirpation.

Whatever procedure be that of choice, there are two elements which must influence all; one is so far as possible to avoid hemorrhage, both in the method of approach and in that of dealing with the ganglion; the other is so far as possible to evade any postoperative evidences of one's work, either subjective or objective.

In the spring of 1900 the College of Physicians of Philadelphia held a so-called symposium, at which the treatment of trifacial neuralgia was the subject of discussion. At that time was presented a method of approaching the ganglion by a direct, trans-zygomatic, and as it has been called, an infra-arterial method. Influenced by the experience chiefly of Krause and Keen, the endeavor was made from the beginning to remove in each case the entire ganglion. The procedure involved an incision much lower than the Hartley-Krause operation; excision or temporary resection of the zygoma (I was at that time not sure which was preferable); a small cranial opening through the lower part of the temporal fossa without the detail of an osteoplastic flap; and an exposure and extirpation of the ganglion *in toto*, without occasioning injury or necessitating ligation of the meningeal artery. My experience at the time of this report was limited to four clinical cases, although the operation had been practiced and studied out on numerous bodies at autopsy. Previous acquaintance with the ganglion operation, as an assistant or onlooker, always by the high temporal osteoplastic method, with the ligation of the meningeal, etc., had been rather a disheartening one. I had seen in various hospitals several very skillful operators conduct the operation on these lines, and on one occasion had seen a death, as was supposed from hemorrhage, on the table. Difficulties from bleeding even during the approach had characterized all these performances. The Johns Hopkins Hospital experience also had been far from encouraging, as the records showed that two out of four cases had not long survived the operation. Subsequent to the introduction here of the direct operation, a colleague, one of the most careful and expert operators I know, again performed a Hartley-Krause operation, choosing it in preference to the other through past experience with the method. The patient also died within a few hours, presumably from operative hemorrhage and incidental shock. On the other hand, only 1 out of 23 cases in our local experience has succumbed to the operation, which will again be briefly reviewed. I mention these facts merely as evidence that the high osteoplastic operation is in the long run more critical, and even in the hands of those who have had the widest experience with the method, is attended with a higher mortality.[16] It must be remembered also that the majority of these cases only represent an attempted extirpation, and often an operation intentionally confined to the lower two-thirds of the structure. In our series

14. This would, of course, remove the force of my argument in favor of permanent resection of the zygoma in order to lessen these deformities.

15. Since writing the above paragraphs I have learned that Dr. Sherman of San Francisco has observed a return of sensation and pain in the trigeminal field after the performance of simple root division, an extirpation of the ganglion having subsequently been necessary. Some features of the case, however, such as the extraordinarily early return of sensation, make the observation somewhat inconclusive, and on physiologic grounds leave the completeness of the primary neurectomy open to doubt, although the operator felt reasonably certain of its successful accomplishment. I have learned also that a similar experience has occurred to Sir Victor Horsley. Neither of these cases, however, have been sufficient, in my mind, to overthrow the principles of "no central regeneration" on which Drs. Spiller and Frazier have been working. On no more conclusive grounds has ganglion extirpation itself been claimed to be inadequate, two cases having been recorded of post-operative continuance of pain. Of these cases, Garré's (Archiv f. klin. Chirurgie, vol. lix, p. 379) was confessedly an incomplete extirpation, and in Friedrich's case (Deutsche Zeitschrift für Chirurgie, 1899, vol. lii) pain is said to have returned in four months. Regeneration of the peripheral branches in each of these patients, a condition that could not have taken place without the preservation of some ganglion cells, was evidenced by the relief from pain which was given through subsequent peripheral operations.

16. The mortality figures may be roughly given as follows: In the first series of one hundred cases, as collected by Tiffany (Annals of Surgery, 1896, vol. xxiv, p. 575), many of which represented cases of the low pterygoid operation, the mortality rate was 22 per cent. In the second series of one hundred cases, collected by Carson (Medical Review, St. Louis, 1899, vol. xxxix, p. 199), the majority of them being high temporal operations by the Hartley-Krause method, the mortality had been 11 per cent. Murphy and Neff, in 1892, collected 42 additional cases with six deaths, 12.5 per cent. Of those having a sufficiently long personal series to deserve mention, Horsley has had two deaths in 21 cases (Practitioner, September, 1900); Krause, in his series of 27 (Münchener med. Wochenschrift, 1901) has lost 7. Two or three of them, to be sure, were cases of late complication, which hardly should be included in the mortality percentages. Dr. Keen's cases, reported in 1898 in the twenty-fifth anniversary volume for Prof. Durante of Rome, were 11 in number, with 3 deaths, 2 of them from operative shock. Dr. J. B. Murphy (THE JOURNAL A. M. A., 1902) likewise records 11 cases with 3 deaths. By the more direct method which Lexer's and my operations typify, the mortality figures, comprising more than twenty unpublished cases, of which I have cognizance, making fifty in all, are below 5 per cent. Lexer and I have each lost one case in our series of 15 and 20 respectively.

in which invariably the effort has been made to totally extirpate the ganglion, an effort successful in sixteen instances, the mortality has been under 5 per cent. Out of my personal series of 20 cases one was lost on the operating table, as will be described.

It was stated in my earlier communication that the operation differed only in detail from others previously described, but that in observance of detail hung the success of delicate surgical procedures of this sort. Every surgeon has, of course, his more or less personal ways of attacking operative problems, and the familiarity with any given method, that comes from practice, may make easy in one man's hands a procedure which may be unsuited to the needs of another. This is especially true of performances such as that under discussion, for at the best, removal of the ganglion is troublesome, and that so many ways of overcoming its difficulties have been advocated need occasion no remark. Since presenting the method, which at that time and subsequently has proved serviceable for my personal requirements, I have seen at home and abroad several other surgeons operate in other ways, and though indebted to these opportunities for many useful suggestions, the impression has always been conveyed that especially in the method of approach these gentlemen have encountered more difficulties and have run more risks than are usual in the variation I have described.

POINTS REFERABLE TO THE INFRA-ARTERIAL PROCEDURE.

There are certain details of the operative steps as they were first given, which for a moment may be dwelt on; there is no necessity of reiterating their main features, as the salient points remain the same.

Formation of Muscle Flap and Exposure of Temporal Fossa.—The arch of the skin incision has been made considerably lower than indicated in my original drawings.[17] The vertical legs of the inverted U are, however, carried down no farther. This is important in the case of the anterior leg, which should not extend below the external angular process of the frontal bone, else twigs of the *N. facialis* to the orbicularis may be injured. Such a result is almost certain to follow in the procedure, which Juvara has described. The posterior leg, however, may be conveniently carried down as far as the temporal end of the zygomatic arch. It is to be regretted that in this, as well as in any of the temporal operations, be they high or low, the facial supply to the occipito-frontalis (*pars frontalis*) is necessarily sacrificed. This, by planing out all the wrinkles from the forehead on the side of operation, leaves a visible asymmetry of the brow, especially in old people who may possess deep furrows, as these patients usually do. The attempt has been made on the cadaver to work out an approach entirely posterior to the hair margin in order to avoid this sequel, but it apparently only adds difficulties to the already difficult procedure. I have been unable to examine all of my patients a year or more after the operation, but in some of those whom I have seen the occipito-frontalis has, in large measure, regained its function.

The necessity or advisability of resecting the zygoma has been much debated. Whether demanded or not by the particular approach employed, its complete removal, flush with the anterior edge of the temporal fossa as well as with the temporal bone at its point of origin, is, for reasons other than operative ones, distinctly advisable. One of the consequences of removal of the ganglion by any method whatever is a permanent (unless exception will have to be made to this statement in case of motor regeneration after division of the sensory root) unilateral paralysis and consequent atrophy of the muscles of mastication. The late (months) deformity resultant to the atrophy of the exposed temporal and masseter muscles, whose outlines normally round out the face, is greatly accentuated if the arch of the zygoma is left intact or has been replaced after a temporary resection. Its removal has been invariably practiced in all but my earliest cases, and in consequence of this step the deformity in most instances is relatively inconspicuous and only shows as a slight flattening of the face, which a casual observer would pass unnoticed. The zygoma should be shelled out of its periosteal covering and cleanly divided at each end by a heavy pair of bone forceps, exactly as a portion of rib is excised in a thoracotomy. A new and less prominent bony arch is formed, and instead of curving outward, as in its previous condition, lies flush with the somewhat flattened tempero-masseteric surfaces. The pad of fat underlying the temporal fascia, together with the incised fascia itself, should be carefully preserved. The lessening in obtrusiveness of this unavoidable postoperative atrophy has been especially well brought out in one of my cases (Case 7), in whom the temporal muscle had been paralyzed and become atrophied in consequence of a preceding operation on Meckel's ganglion. In this case the zygoma was removed at the time of the Gasserian operation, as a result of which the sunken temporal fossa was so much less apparent as to be commented on by both the patient and his friends. The cosmetic result, with and without removal of the zygoma, may be seen on comparing some of the photographs showing the late postoperative results.

Exposure and Elevation of Dura as Far as the Ganglionic Sheath.—Unless the high temporal route is chosen there is no reason for making an osteoplastic flap in the operation, although many adhere to this time-consuming detail.[18] Only a comparatively small opening in the skull is needed; indeed, there are many advantages attached to the small opening, as will be described, and it subsequently is covered in by the temporal muscle and, more important still, by its firm fascia. If a high-bone flap is made, the line of the craniotomy almost always runs across the deep meningeal groove of the lower angle of the parietal bone and often causes annoying hemorrhage, and if the flap with its temporal muscle attached is turned down over the zygoma the bone is apt to be more or less stripped away from its vascularizing soft parts. Several cases of necrosis consequent to this accident have been reported by Krause and others. If the approach is low and made on a level with the zygomatic arch, the thick covering of muscle and retreating angle of the skull make the formation of the bone flap as difficult as it is needless. In any case, should drainage be advisable, an osteoplastic craniotomy complicates the placing of drains. In the last of his series of cases, although developed from the Hartley-Krause procedure, Lexer has come to regard as unnecessary the preservation of the bone. A mallet and gouge or a burr is for me a much quicker, easier and safer way to make the primary opening in the skull in this situation than by the trephine. The small opening is primarily enlarged by prying up the edges of the thin bone plate with an elevator, and the opening is then

17. This operative method was illustrated and described in detail in THE JOURNAL A. M. A., April 28, 1900.

18. Sir Victor Horsley has from the first, although adopting the Hartley-Krause method in other details, regarded it as unnecessary to preserve the bone. (Practitioner, September, 1900.)

rongeured away well down toward the base, somewhat lower than in my original drawings, and, I wish to emphasize again, need never be made high enough to encounter the meningeal artery where it channels the parietal bone. A slight elevation of the dura brings into view the thin, transparent expansion of this membrane, which makes a sheath about the *N. maxillaris* and here, I think, the serious task of exposing the ganglion by splitting its envelope and bringing into view its upper surface should always begin.

Elevation of the Dura with Meningeal Artery and Exposure of the Upper Surface of the Ganglion.—This step illustrates the infra-arterial feature of the operation. Injuries to the meningeal artery heretofore have been among the complicating features of the approach to the ganglion. The vessel in its intracranial course has two fixed points, one at the Foramen spinosum, where it enters the skull, and a second at the Sulcus arteriosus, where it tunnels or deeply grooves the anterior angle of the parietal bone. Between these two points the vessel lies in the dura, with a curve presenting a considerable downward and forward convexity, corresponding to the concave surface of the middle cranial fossa. The distance on the curve of the skull between these two points measures on an average nearly 5 cm. In order to expose the ganglion, the dura underlying the temporal lobe must be gradually elevated during the process of separating from the ganglion the upper sheath of its inclosing dural envelope. The artery in its new position then runs across the dura from behind upward and forward, and as the temporal lobe is elevated and compressed the vessel assumes a concave downward in place of its normal convex position, and instead of hanging like a swing it now arches between its two fixed points, and under this arch all manipulations may be carried out. In 19 of my 20 cases it was thus possible to avoid all complications from meningeal bleeding. Only once did I tear the vessel at the Foramen spinosum owing to an awkward approach and resultant poor orientation which led me to mistake the third for the second division.

Most operators, I believe, prefer to ligate the artery at its point of entrance into the cranial cavity, and criticism has been passed on the infra-arterial method in that it does not allow of sufficient room between the artery and the third division of the ganglion (*N. mandibularis*) to safely attack the latter. This has not been found to be the case. It is very easy to insert the blunt dissector between these two structures, though they be only a few millimeters apart, and to pry the ganglion forward, using the edge of the trephine opening as a fulcrum; in this way no strain need be put on the vessel. For the carrying out of these manipulations a small opening in the skull possesses distinct advantages. I think it has been Krause's universal practice to ligate, and German operators, including Lexer and others, have followed his lead. Dollinger[19] soon after my report, as the result of anatomic investigations, arrived quite independently at the conclusion that it was possible to free and to extract the third division without injuring the artery at the Foramen spinosum and consequently that ligation is unnecessary. His operation, however, does not avoid injury to the meningeal at its higher fixed point, so that only one-half of the possible advantages of the infra-arterial method is gained in his procedure. More recently Bartlett[20] has considerably extended Dollinger's observations on the relative positions of the meningeal artery and the ganglion. He has shown that only in anomalous cases would it be impossible to carry out the infra-arterial procedure and has himself in two instances successfully followed it.[21] The method which Lexer has described and carried out in the last of his fifteen personal cases differs from my own chiefly in this detail of meningeal ligation. He uses the same low incision, makes his opening with mallet, chisel and rongeur, so large (*dreimarkstückgrosse*), however, that he does not avoid injury to the artery as it channels the anterior inferior angle of the parietal bone, resects the zygoma (temporarily), and has come to regard the preservation of the small area of bone as unnecessary. He has not, however, appreciated the detail emphasized in my earlier paper, namely that the skull is entered between the two fixed points of the meningeal artery.[22]

In the pterygoid operation its followers advocate, almost without exception, ligation of the internal maxil-

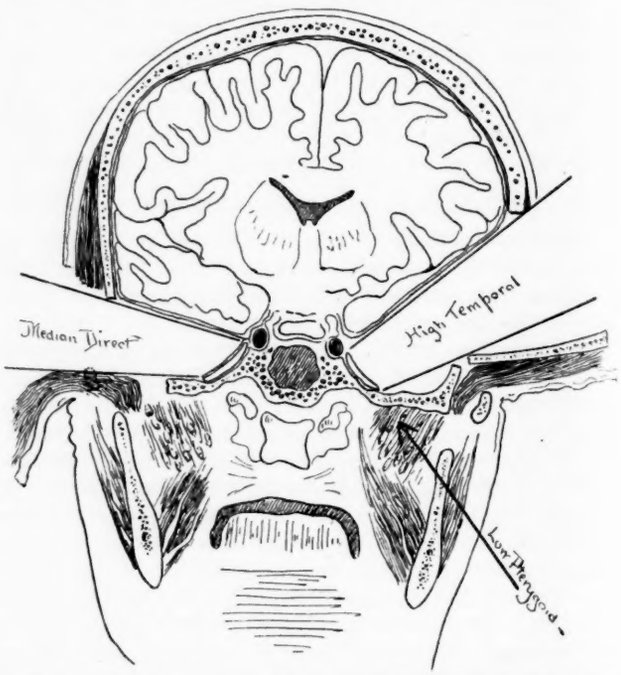

Fig. 1.—Sketch from a frozen coronal section of the head, schematizing the three chief methods of approach. *Oblique methods.* (1.) The high or temporal route. (Horsley and Hartley Krause.) (2) The low or pterygo-maxillary (Rose, Andrews, etc.). *Horizontal or direct method.* Transzygomatic (Lexer, Cushing, etc.). The Doyen method demands the space included by all three.

lary artery, which is necessarily encountered in the low approach. Several American surgeons have, indeed, gone so far as to advise a preliminary ligation of the

19. Centralblatt für Chirurgie, 1900, No. 44, p. 1089.

20. Bartlett: A Contribution to the Surgical Anatomy of the Middle Cranial Fossa, Annals of Surgery, 1902.

21. Bartlett: Excision of the Intact Gasserian Ganglion, Annals of Surgery, 1901.

22. He says (Archiv für klin. Chirurgie, 1902, vol. lxv, p. 14): *"Das bestreben von Dollinger und Cushing diese Unterbindung* (that is of the meingeal artery at the foramen spinosum) *zu umgehen und die Arterie zu erhalten, ist, wie auch Krause hervorhebt, zu verwerfen. Denn, wenn es auch den gennenten Autoren gelungen ist, unter Erhaltung der Arterie das Ganglion zu entfornen, so kommt doch häufig eine Verletzung der Arterie schon beim Oeffnen der Schädelhöhle war, wenn das Gefäss in einem von Knochenspangen überückten Sulcus verläuft; ausserdenn kann die Arterie zu leicht bei den Manipulationen in der Tiefe zur Freilegung des Ganglion zerrissen werden, besonders bei dem stets nothwendigen mehrmaligen Tamponiren zur Stillung der venösen Blutung."* The first of these criticisms may be answered by the statement in the context that the cranial opening need never, unless in anomalous cases, be made high enough to reach the *"uberbruckten sulcus"* (Sulcus arteriosus parietalis, Anat. Nomen.) and the last by giving John Hunter's blunt advice to Jenner: "Injury to the meningeal has occurred only once in my twenty cases, and then by inexcusable awkwardness."

external carotid, which seems quite an unnecessary step if the meningeal can be avoided, and such a step can affect the operation in no other way than to shut off the meningeal artery, without, so far as my experience goes, influencing the venous bleeding in the slightest degree.

The upper surface of the ganglion should, if possible, be entirely exposed during this step of the operation, and the degree of compression of the temporal lobe necessary to bring the structure into view, as can be judged by the accompanying sketch (Fig. 1), is much less in the transzygomatic than in the suprazygomatic or high approach. The extreme degree of compression, unless one satisfies himself with an incomplete extirpation or with an operation limited to the second and third divisions, must always remain a serious drawback to the Hartley-Krause procedure. It is during this and the following stage that complications from pressure by the spatula may ensue. In five of Krause's fatal cases, autopsies showed a superficial brown softening of the cortex; once a hemiplegia occurred; three times, in left-sided cases, a transient aphasia resulted. Lexer emphasizes the importance of care in retracting the temporal lobe and the special danger of placing the elevator in the unaccustomed hands of an assistant. The rectractor in my cases has always been held by the operator himself in the left hand, all the necessary manipulations of elevating dura, of freeing the ganglion and of packing being carried out with the blunt dissector held in the right. I have employed a retractor of much the same form as that of Lexer, although instead of having a square end the end has been rounded, and it is possible that this may, in a measure, account for the unusual number of pressure palsies of the ocular nerves which I have occasioned. It is in this and in the following stage also that the blood-pressure reaction of acute cerebral compression usually occurs, depending in its degree on the extent of elevation of the temporal lobe. The entire upper surface of the ganglion and in many cases the sensory root may be brought into view at this stage of the operation.

(To be continued.)

POINTS IN THE TECHNIC OF ASEPTIC OPERATING.*

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The principles of antisepsis are well understood by the profession, and the methods employed to avoid septic infection are fairly uniform, but, since infection not infrequently occurs as the result of an imperfection in our antiseptic detail, it is well for us occasionally to discuss the subject and to criticise our methods, that we may reject the bad and adopt the good.

The most important point in the prevention of operative infection, of course, is to keep our hands out of septic matter for a considerable period of time before operating, because it is a physical impossibility to remove all infective material from the deeper layers of the cuticle.

If by looking through a strong lens we magnify the skin of the hand to the extent that the epithelial scales assume the size of the ordinary fish scales, and magnify also the bristles of the nail brush in proportion, it will not seem unreasonable to compare the scrubbing of our hands and fingers to the scrubbing of ten fishes with a brush whose bristles are much larger in diameter than the fish scales.

On the human skin, however, the scales grow in more layers than on the fish, and are situated on rugæ and papillæ and in folds and sulci. The human skin also has many hairs with their own scaly surfaces and individual follicles, and has also many sweat glands. When we reflect that these hair follicles and epithelial tissues are the natural habitat of the staphylococcus albus, we realize that the cleansing and sterilization of many fish skins is child's play compared with the sterilization of our hands. In fact, our hands can not be made clean and sterile except by removing the cuticle, a procedure which I am not yet prepared to advocate.

The only practical and safe procedure is to clean and to disinfect the surface as well as possible, and then to cover it with a coating that will prevent the deeper unremoved septic matter or germs from reaching the field of operation. This is why so many operators use rubber gloves. Gloves, however, do not constitute an ideal coating; they interfere with delicacy of manipulation, and they are dangerous because they excite perspiration, and thus bring germs from the deeper layers of the cuticle to the surface ready to infect the patient through possible tears and punctures of the gloves. It is quite common during an operation for a puncture to be made in the finger of a glove and to be overlooked; and even with the greatest care we can not be certain that some puncture or tear will not be overlooked. It is exceedingly annoying, as well as dangerous to the patient, to be obliged to change a glove two or three times during a difficult and prolonged operation.

Coating the hands with gutta-percha or with some other material of similar nature, is open to the objection that a scratch would liberate an accumulation of germ-laden sweat, which the impervious coating had caused to accumulate in the glands.

The old way of thoroughly preparing the skin and then applying a germicide that will harden the surface and check perspiration, and that can be renewed from time to time during a long operation, still seems to be very nearly the ideal method of treating a surface that can not be sterilized except in a most superficial manner.

In cleansing the hands, I always keep in mind the fish skin and the comparatively coarse brush that can not penetrate between the scales nor to the bottom of the folds and sulci; hence I believe that in addition to scrubbing the hands with soapy water, a certain amount of soaking is necessary to soften and to loosen up the dirt between the epithelial scales and at the bottom of the depressions. Twenty minutes, therefore, should be given to scrubbing and to soaking the hands in soapy water. I prefer water drawn into a basin, and frequently changed, to running water because a better and soapier soaking is possible.

Even after the most thorough cleansing with green soap some stain or hardened inorganic matter that may be insoluble in the alkali is apt to remain on the skin, and hence a short scrubbing in diluted acetic, citric or oxalic acid is desirable. This dissolves the remaining inorganic matter and more thoroughly exposes the underlying cuticle. Two or three minutes of such scrubbing will usually suffice.

In order to penetrate still deeper, and to harden the cuticle which has been swelled and loosened by the alkaline scrubbing and soaking, a scrubbing and soaking in 90 per cent. or 95 per cent. alcohol is desirable

* Read at the Seventeenth Annual Meeting of the Southern Surgical and Gynecological Association, 1904.

if not essential. The harder the cuticle becomes under this process the more completely are the underlying and unreachable staphylococci covered up and imprisoned in the depths of the cuticle.

The hands would now be sufficiently prepared for a short operation, but they may be more efficiently and more durably rendered safe for a long operation by an additional scrubbing and soaking for five minutes in a 1-2000 aqueous solution of mercuric chlorid. This not only quickly destroys germs if it finds any, but it still farther hardens the cuticle and forms a sort of film of albumin or albuminate of mercury which imprisons the germs beneath the surface. The film would be softened and perhaps be worked off during a protracted operation were it not that by dipping the hands and arms in the mercuric chlorid solution we can fortify or renew it every ten or fifteen minutes, and practically insure aseptic handling of the tissues during the entire operation.

I do not approve of mixing up the steps in the preparation of the hands and arms by using a combination of green soap and alcohol, or by dissolving the mercuric chlorid in the alcohol. One substance interferes with the best action of the other, and alcoholic solutions of mercuric chlorid have been found to be less efficiently antiseptic than an aqueous solution of the same strength.

I consider that the practice of covering up the arms with sterile sleeves is a bad one, because the sleeves are more or less loose and folded, and are apt to touch the assistants, instrument dishes and parts of the patient beyond the immediate field of operation, and may then carry dirt or germs into the field of operation, particularly if the whole hand be introduced into the abdominal cavity. The bare arms of the operator can feel the slightest touch, and he can dip them or wash them in the bichlorid solution at any time. This can not be done to the sleeves, which may touch surrounding objects many times without the knowledge of the operator.

Many surgeons teach that in performing peritoneal section no antiseptic solution should be touched after the peritoneal cavity has been opened for fear of bringing the irritating fluid in contact with the peritoneum. This is true with the ordinary preparations for operation as I have seen them. In order to do this efficiently and safely as a routine practice, the operator should have three basins within easy reach, two filled with warm sterile water and one with a warm 1-2000 mercuric chlorid solution. In order that the mercuric chlorid shall not harden the blood on the cuticle and interfere with subsequent disinfection, the hands are first dipped in a basin of sterile water to remove the blood, then into the mercuric solution and then, before the field of operation is touched, into the other basin of sterile water to remove the excess of mercuric chlorid. In this way a frequent renewal of asepsis is safe and practical; but as I seldom see more than two basins at the disposal of the operator, and seldom see an operator redisinfect his hands during the performance of a laparotomy, I infer that this practice is not usually followed.

I wish to bring up one other point that is of the greatest importance, if one would have perfect results in asepsis, viz., the preparation of the field of operation. The soap and water scrubbing just before the operation is often quite thorough, but the scrubbing with alcohol or ether and with the antiseptics is ordinarily quickly and insufficiently done. Now, it is comparatively easy to clean the abdomen, but it is quite difficult to clean the pubes and groins. In the practice of many surgeons who have otherwise good results suppuration of the stitches after the Alexander operation is almost the rule. The reason for this is that the skin about the proposed incision is not properly prepared. The shaving should be carefully done, in order not to produce scratches and abrasions, and the scrubbing not only with soap, but with alcohol or ether, and the mercuric solution should be thorough and prolonged. In plastic operations on the genitalia, the perineum and vagina require the same prolonged, careful scrubbing and the cervix a thorough wiping out and disinfecting. Vaginal douches, although they be prolonged and strongly antiseptic, are not sufficient.

The smallest operation should have the same thoroughness of preparation as the major ones. Pain or a rise of temperature should never follow a curettage. That pain, temperature and sometimes serious infection sometimes do follow a curettage is a fact that I have observed in the practice of celebrated surgeons; and I have been particularly impressed by the fact because my assistant caused a great surprise on two or three occasions by telling operators of her acquaintance, who had had trouble after curettage, that we never had either pain or temperature at the Woman's Hospital after this operation. Now, this fact reflected no particular credit on the hospital, for it was only what should follow a proper technic, but it proved to me that by haste, thoughtlessness or, perhaps, by a want of study and of intelligent attention to detail, operators occasionally still are having bad and unjustifiable results. Experience and skill are good, but cleanliness is better, and more careful study should be given to it.

While talking about septic skin, I would like to apply the same reasoning to the dressing of the wounds after operations. Since germs exist in the depths of the cuticle and are prone to come to the surface, they must be rendered harmless after they arrive there. This is best done by the use of dressings that absorb perfectly the discharges as well as the perspiration. Germs require moisture for their development, and perfect dryness is the ideal to be striven after. Occlusive dressings made with collodion favor the development of the native staphylococci in the perspiration, and in the serum and blood exuded about the sutures and retained there. Powders do not absorb well, and they form hard masses or cakes over the wound which allow moisture to accumulate under them. The best dressing is sterilized gauze placed in shreds over the sutures, so that the shreds will be forced down into the depressions about them, and a thick layer of sterile gauze placed over the shreds. After abdominal incisions, such dressings will keep the wound fresh for about a week. Over an inguinal incision the effect does not always last so long; after five or six days an inguinal wound should be washed off with an antiseptic solution, then thoroughly dried, and again covered with sterile gauze which may be changed every day, or may be left on longer according to the amount of irritation apparent. Dry dressings over peritoneal sutures should be changed every four hours, and oftener if they become saturated.

Secretaries Should Exchange Programs and Reports.—We believe the pharmaceutical bodies have profited by such a practice during several years past. The secretary of a state association who fails to send programs and reports to the secretaries of other state associations and to the pharmaceutical press neglects an important duty.—*Meyer Bros.' Druggist.*

OBSTRUCTIONS IN THE RETINAL ARTERIES.*

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In bringing forward this subject for your consideration, I intend to speak only of the three most frequent causes, which are, in the order of their importance, arterial diseases, embolism and spasm. I have not included thrombosis, except as it results from the above-mentioned cause, it being my belief that primary thrombosis in healthy unobstructed retinal arteries is rarely found, while as a complication of the above pathologic conditions it is rarely absent.

For many years following Graefe's publication in 1859, of the first carefully observed and recorded case of obstruction of the central artery by an embolus, most cases presenting a similar clinical history and picture were ascribed to this cause.

During later years, however, the increase in our knowledge of the histologic pathology of the retinal arteries has pointed to obliterating endarteritis and spasm as more common causes of the condition, and has thrown doubt on many cases previously diagnosed as due to embolus, as shown by Reimar. Of the obstructive conditions mentioned, by far the most common and important is arterial disease in its various forms, the most interesting of which for the present study is arteriosclerosis occurring as part of a general arterial degeneration, especially when it takes the form of an endarteritis proliferans. In the light of our present knowledge, it is evident that the majority of obstructive conditions of the retinal arteries may be put under the heading of retinal arteriosclerosis. With the ophthalmoscope it is usually impossible to tell which of the arterial coats is most seriously diseased, so that the diagnosis of arteriosclerosis would seem the most applicable except in those cases of distinct periarteritis, and even here the inner coats are probably more or less diseased. I think that the importance of retinal arteriosclerosis is not ordinarily recognized, and I am sure that it is often overlooked, or, if observed, only given a passing thought, unless of a degree sufficient to cause a gross lesion of the retina, and even then looked on as a progressive disease that treatment will not stay nor alter. There is an old saying that "a man's age is the age of his arteries," and it is a well-recognized fact that the greater the degree and extent of a general arteriosclerosis the more apparent the general evidences of senility. There is no place in the body where arterial changes can be better observed and studied than in the eye, for here, by the aid of the ophthalmoscope, the vessel changes can be directly inspected by the ophthalmic surgeon, who is thus often the first to discover the beginning of general arteriosclerosis, and he should be alive, therefore, to the necessity of advising appropriate treatment.

In the earliest stages, the ophthalmoscopic picture consists of a slight increase in the reflex from the arteries, which makes the contrast between them and the veins more pronounced, and this reflex is often slightly irregular in outline. Slight irregularities in size of the arteries are noticed, and they are more tortuous, especially the macula branches, and a slight congestion of the discs and a feathery outline are often observed. Where the artery crosses above a vein the latter is often compressed, leading to its dilatation and tortuosity distally, and the vein is hidden to a greater extent than the apparent width of the artery, showing that the latter has thicker walls than usual. A little feathery exudate is often seen in places beside the arteries. This should not be mistaken for the opaque nerve fibers often seen running beside the vessels close to the disc. Where the central artery in the nerve is thickened and enlarged, it often imparts a pulsation to the veins which can be seen ophthalmoscopically. All these conditions may be present or only one or two.

When the fundus shows the picture described above, it should be looked on as a danger signal of an advancing arterial disease. In more advanced stages the arteries show still greater increase of light reflex, the silver wire arteries of West, and become much more tortuous, while the unevenness often exists to the extent of a decided beading, the beading showing in the artery and also in the light reflex. Simple tortuosity, however, should never be construed to indicate vessel disease, especially when found in marked hypermetropia with amblyopia. It is in this stage that lesions in the retina appear. A small arteriole becomes so sclerosed as to be impermeable, or its lumen so constricted that the portion of retina supplied by it is not properly nourished and a local edema occurs with subsequent degeneration, and the larger the obstructed vessel the more extensive the retinal change. Hemorrhages often occur from the necrotic vessel beyond a partial obstruction, or following the partial late restoration of a complete obstruction. In other words, the appearances of the early stages of degenerative albuminuric retinitis are produced. There are, indeed, many cases of retinal disease which should properly be called arteriosclerotic retinitis, where the distinctively degenerative condition of the retina results from the retinal arteriosclerosis, itself a manifestation of a general arterial disease, with so slight an involvement of the kidney vessels that no albumin is found on repeated examination and the amount of urea is normal, and it is clearly evident that the arterial disease is primary and not due to uremic poisoning. This was pointed out by Samuel West[1] in his treatise on granular kidney, and more recently by Dr. de Schweinitz,[2] myself[3] and others.

I can not do better at this point than to quote the following conclusions with which Dr. West[4] closes a paper on albuminuric retinitis:

"I may bring this communication to a conclusion by summing up the facts which I think justify the drawing of a sharp distinction between the two forms of albuminuric retinitis, the degenerative and the exudative. They stand in strong contrast with each other in the following respects:

"1. Of the form of disease with which they are usually associated—the degenerative with granular kidney, the exudative especially with the parenchymatous nephritis.*

"2. Of their nature and cause—the exudative being inflammatory and probably toxic in origin, the degenerative consequent on vascular changes and more or less mechanical in origin.

"3. Of sight—for the exudative—even in the extreme forms, may recover, with little or no defect of sight,

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Samuel West: Treatise on Granular Kidney.
2. Transactions A. M. A., Ophthalmic Section.
3. Boston Med. and Surg. Journal, Dec. 10, 1903, vol. cxlix.
4. Lancet, Aug. 19, 1899.

but with degenerative, if there is any impairment of sight, it is usually progressive.

"4. Of diagnostic value—the exudative being an interesting by-phenomenon of chronic parenchymatous nephritis, an affection the existence of which is obvious enough, while in granular kidney the degenerative often makes the diagnosis certain in cases which have been hitherto obscure.

"5. Of risk to life—for while in both cases it indicates a grave form of renal disease which may of itself prove fatal, in granular kidney it indicates in addition all those dangers to which arterial disease exposes the patient.

"I think, therefore, that the distinction is not only justified by the facts, but that it explains many of the apparent contradictions which are made by different authors."

Small branches often become closed by the obstructive endarteritis, and are at first covered by edematous retina into which they seem to disappear, to show later, after the subsidence of the edema, as white lines. A main branch and its terminals may be reduced to white bands by complete obstruction throughout. A large vessel often has a broken appearance at a point of partial obstruction, and new-formed vessels are seen coming from the proximal portion, giving the vessel a feathery appearance, or more commonly the main branch on the disc gives off a network of new vessels. In fact, the ophthalmoscopic pictures are very varied, and a number of different retinal diseases may have arterial degeneration for their cause, as pointed out by Ole Bull.[5]

The early stages of arterial degeneration require a careful inspection of the upright image for their detection, and as Alleman[6] has so well pointed out in his recent paper, it is this early detection of beginning premature senility that puts us in a position to stay the downward progress. I find that the vascular condition of the fundus can best be studied by using a very bright light of small size and close up to the plane of the patient's ear. The light I obtain by using a Welsbach and an iris diaphragm chimney, with a 1.5 cm. opening.

A branch of the central artery may be suddenly obstructed from a combination of endarteritis and spasm, giving the picture produced by an embolus of a branch. This may happen to the central artery itself, where a partial obstruction by an area of endarteritis proliferans nodosa becomes complete through a lowering of the blood pressure with collapse of the vessel wall and thrombus formation or spasm of the vessel. Immediate blindness results which may be only temporary, if the obstruction becomes again incomplete, or if not the fundus soon shows the classical changes described by Graefe.

Gonin[7] of Lúsanne reports an interesting case of sudden loss of sight, where a clinical diagnosis was made of thrombosis of the central vein, but postmortem examination of the eye revealed a very extensive sclerosis of all the vessels. In the arteries the cells of the intima were in a general state of proliferation to the extent that at their origin on the disc the lumen of each of the three main arteries was nearly obliterated. Sections through the optic nerve showed the central artery blocked by a button of dense tissue. This button was found to consist of endothelial tissue and elastic fibers growing by a pedicle from one place in the internal wall and occupying the entire lumen, with the exception of a mere slit.

Hoppe[8] of Cologne, in accounting for a case of sudden obstruction of a branch of the central artery, advances the theory that from a lowering of the blood pressure healthy arterial walls may collapse or be sucked in to the extent of causing a sort of valvular closure, with destruction of the function of that portion of retina supplied. Such a theory seems hardly necessary to explain such cases, particularly in view of the pathologic conditions found in Gonin's case.

E. Hertel[9] examined postmortem the eyes of a number of cases of general arteriosclerosis where sight was not impaired, but where in some cases slight arterial changes showed ophthalmoscopically. The microscope showed two kinds of changes. The first was found in all eyes and all along the vessels, and ascribed to senile changes by Hertel. It consisted in a widening of the lumen of the vessels, with an increase of thickness of the walls. The second kind of change was not general, and consisted of an inflammatory lesion with round-cell infiltration and formation of cellular connective tissue leading to thickening of the vascular walls. Increase of elastic fibers in all parts of the wall occurred, with elastic fibers sometimes projecting into the lumen of the vessels. He thus proves that serious obstructive changes in the retinal arteries, often observable by the ophthalmoscope, may be present in cases of general arteriosclerosis long before the occurrence of defects of sight.

Nettleship[10] thinks that an early stage of granular kidney reasonably may be suspected when decided hyaline thickening of the retinal arteries is seen, and that the suspicion will be much strengthened if the patient be comparatively young.

Dr. John T. Carpenter[11] reports that 6 cases with advanced arteriosclerotic changes died from apoplexy, and that cases showing hemorrhages only were less early fatal than the others.

In connection with this question of arteriosclerosis, the following cases of my own are interesting:

CASE 1.—Woman, aged 61, came to my office March 10, 1899, complaining that she could not see as well as formerly.

Examination.—Examination of the fundus revealed the following: O. D. retinal arteries showed well-marked sclerosis with areas of perivasculitis. Many spots of exudate with beginning degeneration and pigment depositing. O. S. showed similar conditions of the arteries and numerous small flame-like hemorrhages were scattered throughout the retina; in other words, a hemorrhagic retinitis existed resulting from the arteriosclerosis. Her family physician was notified of the findings and advised that the kidneys were probably involved, but during the next three years the urine was repeatedly examined and no evidences of kidney trouble found. The patient has followed directions and taken good care of herself, but lately has begun to fail and in January, 1904, her physician reported that the urine showed well-advanced chronic nephritis.

CASE 2.—C. W. H., aged 47, machinist, entered Boston City Hospital May 9, 1903, service of Dr. George Sears.

Family History.—Negative.

Previous History.—Negative. Denies venereal diseases; uses no liquor nor tobacco.

Present Illness.—Six or seven weeks ago patient "broke down" and since that time he has been unable to work. Some vomiting at times, but none for past two weeks. Dyspepsia.

5. Ole Bull: Diseases of the Retinal Vessels.
6. American Medicine, Feb. 20, 1904.
7. Archives d. Ophthalmologie, April, 1903, vol. xxiii, p. 219.
8. Graefe's Archives, 1903, vol. lvi, No. 1, p. 32.
9. Trans. Heidelberg Oph. Soc.
10. British Med. Jour., Dec. 26, 1903.
11. Oph. Sec. College Phys. and Surgs. of Philadelphia, January, 1904.

For four or five weeks burning pain in rectum. Bowels moved every two or three days. Dejecta containing lumps of feces. Hemorrhoids for years with streaks of blood in stools. Appetite poor.

Present Condition.—Well developed and fairly well nourished. Pale, pupils equal and react. Tongue dry and coated. Pulse equal, regular, good, with tension increased and showing arteriosclerosis. Heart sound and action normal. Lungs, slight dullness of left side of chest, with profuse medium and fine moist râles throughout posterior and lower half of back. Breathing in left side somewhat bronchial. Right lung tympanitic, otherwise normal. Spleen not felt. Abdomen, slight general tenderness; numerous hard, irregular masses, size of walnuts, can be felt scattered throughout. Extremities and reflexes normal.

May 10, 1903. Urine shows pale color; specific gravity 1011, acid, large trace of albumin, no sugar. Numerous hyaline and fine granular casts, renal cells, leucocytes and squamous cells.

May 13. Patient steadily improved in general condition, appears somewhat stupid at times. Practically no cough or expectoration. Hemorrhoids have gradually and entirely disappeared. Considerable difficulty in controlling the urine and feces. Knee jerks lively.

May 17. Mental condition does not improve. Frequently repeats answers to questions over and over again. Has a peculiar laugh.

May 27. Steadily failed since last note. Passed dark clotted blood by rectum, vomited several times, small ulcer appeared on right shoulder. Swelling, redness and tenderness of glands of right side of neck. Patient sank into a stupor and became comatose and died at 1:30 a. m. May 27.

Blood Examination.—May 9, 125,600; hemoglobin, 75 per cent. May 11, 118,600; hemoglobin, 75 per cent.

Dr. E. Stanley Abbott, alienist, examined the patient and made a probable diagnosis of incipient general paralysis. I examined the patient's eyes a few days before death and found a marked neuroretinitis amounting to choked disc with exudates about the discs and maculæ, and arteries sclerotic.

This case illustrates the exudative type of retinitis, where retinal lesions due to the arteriosclerosis are largely masked by the exudates resulting from the uremic condition. The choked discs evidently resulted from the extreme distension of the nerve sheaths, which was found to exist on removing the eyes. Whether this patient had arteriosclerosis prior to the kidney disease can not be told by postmortem evidences. The autopsy showed very marked arteriosclerosis, and particularly of the small brain arteries.

AUTOPSY.

May 27, 1903. Body, Dr. Roberts; head, Dr. Southard. Nine hours postmortem. Age, 47 years. Body of a well-developed, poorly-nourished man. Rigor mortis present. Slight lividity of dependent parts. Pupils equal, 5 mm. in diameter. No edema.

Peritoneal Cavity.—Surfaces smooth and shining. Appendix 5 cm. in length, free, provided with mesentery throughout and points upwards and inwards. Mesenteric lymph nodes not enlarged. Diaphragm reaches to the fifth space on the right; same on left.

Pleural Cavity.—Strong fibrous adhesions bind down lower lobe of left lung laterally and posteriorly.

Pericardial Cavity.—Surfaces smooth and shining. A few milk patches beneath visceral pericardium. Normal amount of fluid.

Heart.—Weight, 490 gms. Valves: Cusps of both aortic and mitral valves show some thickening. Pulmonary and tricuspid valves normal.

Measurements—

Tricuspid valve	13 cm.
Pulmonary valve	8 cm.
Mitral valve	10 cm.
Aortic valve	9 cm.
Left ventricle	2.5 cm.
Right ventricle	.75 cm.

Fresh section shows no fat.

Coronaries.—Both coronaries show marked degree of sclerotic change.

Lungs.—The apex of each lung exhibits areas of puckering, which on section are found to be composed of dense fibrous tissue. Besides these are a number of hard nodules. Lower lobes of each lung dark red on section, and slight pressure brings forth considerable frothy fluid.

Spleen.—Weight, 130 gms. Capsule wrinkled, dark purple in color. Section dark purple, and trabeculæ are increased.

Gastrointestinal Tract.—Colon shows numerous ulcers, some of which are very large, extending for several centimeters; others smaller. Bases of these are grayish in color, covered with a dark chocolate colored material. Besides these ulcers are a number of small, slightly raised areas, averaging 2-3 mm. in diameter.

Pancreas.—Normal in appearance.

Liver.—Weight, 1,700 gms. Capsule smooth. On section surface normal in appearance. Lobules not easily made out.

Kidneys.—Weight, 240 gms. Capsule strips with difficulty, leaving behind a roughened surface. Section pale; not made out. Fresh section shows considerable fat.

Adrenals, Bladder and Genital Organs.—Normal in appearance.

Aorta.—Shows marked arteriosclerotic changes.

Head.—Scalp normal. Cranium thin without diploë. Dura normal, without adhesions. Sinuses filled with chicken fat and cruor clot.

Brain.—Weight, 1,500 gms. Pia over a few sulci, especially at junctions of sulci, shows thin white streaks of old fibrous thickening. Pia in the main normal. Vessels slightly injected. Subpial space contains a slight increase of fluid. Brain substance firm and of normal appearance. The walls of the ventricles stand rather firmly open as if from a moderate permanent dilatation. There is from 15 to 20 c.c. clear fluid in each ventricle. There is no sign of chronic change except in the accessory sinuses of the fourth ventricle, which show a coarse, sanded appearance. Two small pea-sized cysts of softening with pale, irregular walls and semigelatinous contents, occur, one in the outer posterior portion of the left lenticular nucleus in the plane passing through the anterior poles of the optic thalami; the other in the central portion of the pons, apparently cutting off a few pyramidal fibers, but chiefly pontine commissural fibers. The vessels at the base show well-marked and very evenly distributed yellowish thickenings, but are apparently everywhere pervious. The sclerosis extends into the smaller branches and may be followed as far as the annectent gyri. The eye grounds show chronic changes, equal on both sides. Hypophysis normal.

Middle Ears.—Normal.

ANATOMIC DIAGNOSES.

Chronic diffuse nephritis.
General arteriosclerosis.
Hypertrophy of heart.
Sclerosis of coronary arteries.
Healed tuberculosis of lung.
Chronic hemorrhagic enteritis.
Follicular enteritis.
Chronic fibrous pleuritis.
Subpial edema: chronic internal hydrocephalus, slight subpial edema.
Chronic fibrous leptomeningitis (moderate).
Chronic ependymitis of accessory sinuses of fourth ventricle.
Small old cysts of softening.

MICROSCOPIC DESCRIPTION.

Heart.—The coronary branches show marked intimal changes, both proliferative and degenerative. The intima with the fatty central zone may be from 1 to 2 mm. thick. No branch seems completely occluded.

Lung.—The smaller vessels show intimal thickening. There are in a section several dense fibrous areas with old pigment collections and foci of lymphoid cells. The fibrous areas are sometimes continuous with the peribronchial tissues. Many of the alveoli are collapsed and many contain pigmented phagocytes.

Spleen.—Hyaline changes in media of arterioles of malpighian nodules. Reticulum of pulp prominent. Pulp injected. There are very numerous pigmented cells. Scattered through the pulp are numerous polynuclear leucocytes.

Liver.—Not remarkable. Slight collections of lymphocytes in periportal connective tissue.

Kidney.—Capsule thickened. Vessels show thick intimal proliferation. About the vessels is much dense fibrous tissue, fairly rich in nuclei. There is much diffuse overgrowth of fibrous tissue in the cortex, associated with tubule atrophy and destruction and various grades of glomerular change advancing to complete fibrosis. There are a few casts in the collecting tubules. It would be difficult to deny that the whole cluster of changes in the kidney is a product of the arteriosclerosis.

Dr. E. E. Southard, who has been of great assistance to me in this case, writes to me regarding such cases as follows:

"It seems to be impossible to prove in many cases, in respect to kidney lesions themselves, whether conditions to which the name of interstitial nephritis can be given are produced by sclerosis or by primary (unknown) proliferative changes of the interstitial tissue; but it is probably accurate to say that in the kidney, either change may initiate the other: thus that vascular changes may follow the interstitial and vice versa. I don't know that this throws any light on your problem of the eye changes and their significance; but it would seem, could we look into the kidney as into the eye, that there would still be some doubt as to the significance of vascular changes which might be visible."

CASE 3.—Seen Feb. 13, 1904, in consultation with Dr. C. F. Moulton. Male, aged 50, school teacher, has been in poor health for several years.

History.—His physicians have several times examined his urine without finding albumin. For about a year the sight of the right eye has been failing, and he has had frequent attacks of sudden blurred vision of that eye lasting from a few minutes to an hour. During the past few weeks the sight has been poorer in that eye, and he has noticed a partial loss of field of vision, which defect is well shown by the field chart taken by Dr. Moulton (Fig. 3). The patient looks and acts like a man enfeebled by age. He is apathetic and his memory is very poor.

Examination.—The right eye shows the following interesting picture at the fundus: There is a sclerosis of all the retinal arteries, with the inferior temporal branch reduced to a white band, the obliteration of its lumen commencing at the edge of the disc. Just beyond this the vessel has a rounded appearance, but it soon changes to the flat band-like appearance seen more distally. The patient is of dark complexion with abundant retinal pigment, so that the obliterated artery stands out white and glistening against the dark background, and even the small branches can be seen as little white threads. The portion of the vessel on the disc shows thickened walls and a tiny stream of blood in the lumen, coming to a sharp point at the edge of the disc. Coming from this portion of the vessel are several new formed arterioles and the central two-thirds of the disc, especially the lower part, is partly hidden by an anastomosing network of new formed vessels, from which new vessels can be seen running on to the retina, a distance of a disc diameter or a little more. I have never before seen so marked a network of new formed vessels.[12]

The upper temporal artery also shows obliteration from just beyond its second branch out, giving it the same white band-like appearance. The second branch of this vessel, which runs down and to the temporal side of the macula, becomes partly obliterated soon after leaving the parent vessel, and its distal portion is surrounded by a wide area of white edematous retina which buries the vessel except in spots. Just below the macula there is another white area of edematous retina at the tip of one of the branches of the vessel first described. Between the disc and the macula, but nearer the latter, are two small spots of degenerated retina. The following sketch shows the conditions described (Fig. 4).

The left eye shows only a very slight arteriosclerosis and this, to my mind, is another evidence of the assertion that such cases are to be studied from the standpoint of primary arterial degeneration, which, as is well known, may vary greatly in different locations, while it has been my experience that the extensive inflammatory degenerations of the retinal and choroidal vessels resulting from the uremic poisoning of advanced chronic nephritis affects both eyes in nearly equal degree. Dr. Moulton has recently informed me that after two months' treatment with potassium iodid the patient's physical and mental condition has improved greatly and the visual field has changed slightly as shown in Fig. 5. Eye massage was also used.

CASE 4.—E. G. W., aged 53, seen Jan. 23, 1902; has never had any trouble with his eyes until day before, when at 9:30 a. m. he suddenly became aware that he could not see the left half of any object he looked at.

Examination.—Examination revealed a complete loss of the left fields, even to light perception. The onset of this hemianopsia was not accompanied by any other sign of cerebral disturbance than a dull feeling head and the patient was able to finish his day's work, though much inconvenienced by his half vision. The ophthalmoscope reveals a moderate degree of sclerosis of the retinal arteries, with a few spots of degeneration in the macular regions. His urine showed a very slight trace of albumin. In two weeks the blind fields had recovered a hazy vision and in three weeks more the fields were perfect except for colors.

I saw this patient again April 16, 1904, and found no field defects whatever. The fundi showed slight increase of the arteriosclerosis, with a fresh hemorrhage in the right eye near the disc. His mental and physical condition, however, was much reduced, and he styled himself "a walking sick man."

In view of the fact that the retinal endarteritis probably indicates the same condition existent in the cerebral arteries, is it not possible that the cerebral disturbance which caused the hemianopsia may have been precipitated by a spasm of the cerebral artery supplying the portion of brain involved? The fact that no other symptoms of cerebral apoplexy appeared, and that the hemianopsia disappeared so quickly, would tend to support such a hypothesis.

CASE 5.—Mrs. G. A. M., aged 67, was seen May 1, 1904, and the following history obtained:

History.—Eighteen months ago a blur came before the right eye, and the optician consulted made a diagnosis of albuminuric retinitis. The urine was examined by an expert chemist and pronounced normal. She then consulted an oculist, who told her that there was a hemorrhage in the retina of the right eye. Since then the sight in that eye has failed, and during the past six months the sight of the left eye has also been greatly reduced.

Examination.—V. O. D. = p. l., v. o. s. = counting fingers at 6 inches. The ophthalmoscope shows a most extensive arterial and venous degeneration. Many of the arteries in each eye are reduced to white bands running across areas of exudate and degenerated retina. The nerve head is hidden by swelling and exudate and there are hemorrhages scattered all over the fundus. Most of the hemorrhages seem to be from the veins. It is apparently a case of very extensive vessel sclerosis without very serious involvement of the kidneys. The urine on examination still shows free from albumin or sugar.

I have at present several patients under my care who have well-marked retinal arteriosclerosis, with degenerative retinitis, with little or no albumin in the urine, who have already lived beyond the allotted two or three years.

12. Particular attention was drawn to this condition of new vessel formation by Hugh Thompson in his recent articles on obstructions of the central artery. Ophthalmic Review, 1902, March and April.

It is well known that the changes in the retinal arteries described above are evidence of general changes which eventually result in death, yet very little is commonly done in the way of treatment.

I would urge ophthalmic surgeons and general practitioners to be alive to the necessity of advising appropriate treatment in the early stages of this disease, when I am sure so much more can be done than is generally supposed. We can all remember when patients

Fig. 1.—Sylvian artery from Case 2, showing marked thickening of the intima with a break in the elastica.

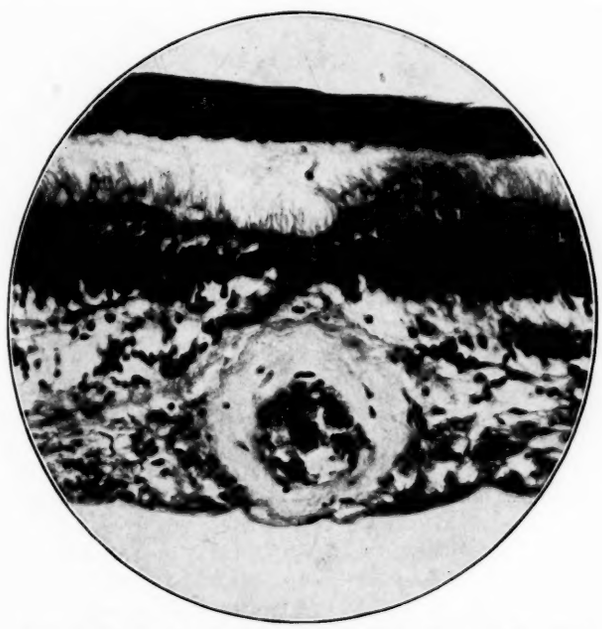


Fig. 2.—Section from a case of Dr. Verhoeff's, showing marked thickening of the intima of a main branch near the disc.

with phthisis pulmonalis were looked on as not requiring other treatment than that necessary to make their few remaining months comfortable, and physicians spent very little time in studying each case with hope to cure or greatly lengthen life. It is not to be expected, however, that so much will be accomplished in staying the progress of arterial degenerations as has been done with phthisis, the differences in average of age preventing, but the obligations to do all we can for these cases is just as imperative.

That the rush and hustle of our modern American business and social life is conducive to early arterial degeneration, is a well-established fact, and this, with the predisposing influences of heredity, rheumatism and the infective diseases, especially syphilis, constitutes the principal causes of obstructive arterial disease other than the cases distinctly resulting from the uremic poisoning of a kidney lesion, which is usually of a parenchymatous type.

From the brief suggestions here offered as to the causes of retinal arteriosclerosis, it is evident that the treatment consists largely in regulating the patient's mode of living, especially as regards the avoidance of over nerve strain and all excesses. The very best advice to such patients is to live moderately in every way, and to keep the processes of digestion and elimination as normal as possible. The details of the regulating treatment, of course, must be such as each individual case calls for. In addition, it has been my custom to advise the long-continued use of iodid of potash in small doses.

EMBOLISM.

The plugging of a retinal artery by a floating particle which usually comes from diseased heart valves or

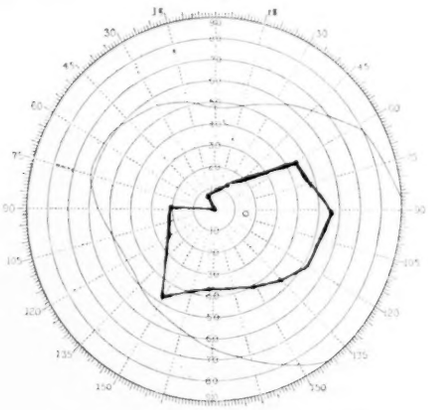


Fig. 3.—Right eye. Feb. 13, 1904.

a heart thrombus, is occasionally seen, and if the plug is stationary in a central artery, we have the sudden loss of sight with the fundus changes so ably described by Graefe, which do not need reiteration at this time.

I am inclined to the theory that ascribes the cherry-red macula to the contrast offered between the very thin and non-edematous retina of this region with the color of the choroid showing through, and the white edematous surrounding retina. I have several times seen a central retinal separation which shows the bright red macula contrasted with the gray surrounding portions, simulating the picture produced by embolism.

Dr. Verhoeff[13] has published a case which gave the fundus appearances of embolus following optico-ciliary-neurotomy, where the cherry-red macula was due to a hemorrhage, and he suggests this as the cause in some cases. The embolus may be a foreign substance introduced into the circulation, such as paraffin injections used in reducing nasal deformities, as shown by the case of Hurd and Holden.[14] In this case, the question has arisen how an embolus large enough to obstruct the central artery could pass through the lungs. That

13. Reference Handbook of Medical Sciences.
14. New York Medical Record, July 11, 1903.

the capillaries of the lungs would allow quite large particles to pass through is shown by the cases of fat emboli of the vessels of the brain, following fractures of the tibia or femur, and it might be possible that fat emboli could occur large enough to stop in the central artery of the retina, and Virchow showed by experiments that a foreign body will cause contraction of the arterial walls at the point of lodgment and thus complete the obstruction.

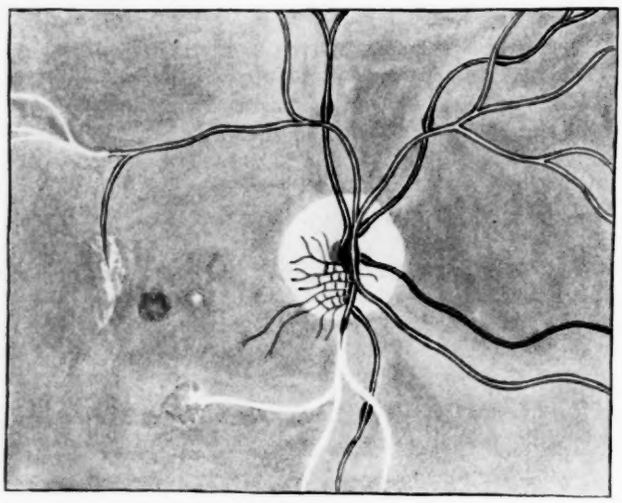


Figure 4.

The following case of embolus, in the superior nasal branch, is interesting in this connection:

CASE 6.—Mrs. R. L., aged 29, has had no previous trouble with eyes and no premonitory symptoms. While walking on the street she suddenly noticed a blur come before the left eye, which rapidly increased, and on covering the right eye, she could see but little with the left, and not at all in a direction downward and to the right. I saw her seven hours later and found the following: O. S. V. = 20/200, the fundus shows a whitish, clouding of the retina, limited sharply to the upper temporal quadrant and starting at the disc. The upper temporal artery reduced to a mere thread and partially buried in the white edematous retina, the visual field shows the defect corresponding to such a loss of retinal function and is shown in the chart below.

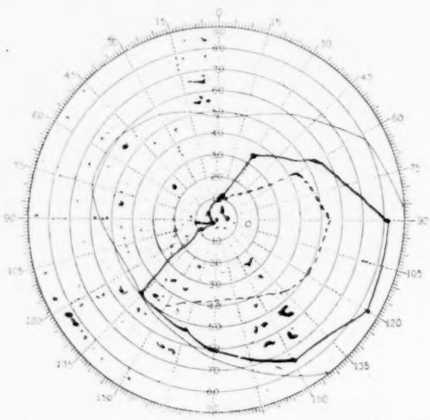


Fig. 5.—Right eye. Dotted line February 13, continuous line May 7.

Examination.—On examination of the patient, I found that she had well-marked mitral and aortic endocarditis. She was put to bed and given nitroglycerin and the eye massaged during inhalation of nitrite of amyl. During the next two or three weeks the retina gradually recovered its normal color, but the defect in the field remained. Examination three weeks after first visit showed a plug in the upper temporal branch extending from the point of bifurcation of this branch and the nasal branch at the center of the disc, to nearly the edge of the disc. From this point on the artery contained a small amount of blood, but was only about one-third the size of the other main branches. There were no signs of arterial disease and the clinical history and fundus picture would point quite conclusively to embolus as the cause of the arterial obstruction.

June 1, 1904. The upper temporal artery was a mere thread and the optic disc was atrophic. F. V. as before.

Treatment of embolism is probably rarely instituted in time to save the functions of the retina. The use of nitroglycerin, nitrite of amyl and deep massage should be tried as soon as possible after discovering the condition, with the hope that the plug, if situated in the central artery, may be carried as far into one of the branches as possible, and thus reduce the field defect to a small area. If, in a suspected case of central embolism, there should be a complete restoration of the retinal function, it would point to a diagnosis of spasm rather than embolus, it being inconceivable that an embolus large enough to stop temporarily in the central artery could pass to so small an arteriole that no retinal defect would be produced.

E. Stoke,[15] in December, 1903, published a case of simultaneous bilateral embolism of the central arteries with complete recovery in a few days, occurring in a man of 80 who had marked atheroma. One, I think, is justified in hesitating to accept such a diagnosis at the present time, and feeling that some disturbance in the blood or circulation may have precipitated a temporary spasm, causing the sudden loss of vision.

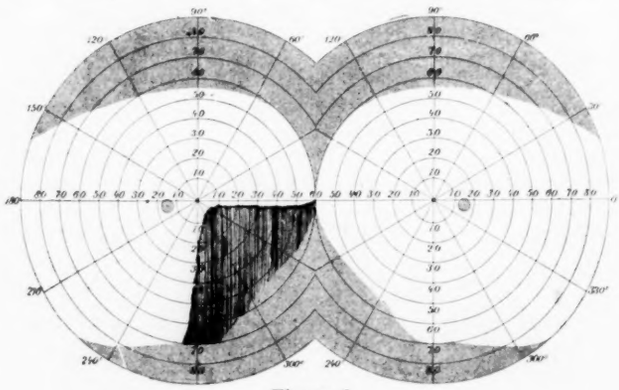


Figure 6.

I doubt if paracentesis and evacuation of the anterior chamber will do more than nitrite of amyl and deep massage.

SPASM.

That spasm of the retinal arteries may occur of sufficient degree to cause a temporary partial or complete obstruction to the flow of blood seems proven beyond a doubt. It has been the good fortune of several observers to see patients during an attack of spasm of the retinal vessels, where, for a few minutes, the arteries were reduced to yellow streaks, with subsequent restoration of the circulation. Such patients give a history of more or less frequent attacks of complete or partial blindness of one eye, lasting from several minutes to an hour or two.

Case 3, described above, gives such a history, and there were evidently attacks of spasm preceding the final complete obliteration of the inferior temporal artery. It is my belief that spasm occurs most fre-

15. Med. Wochenbl., Dec. 26, 1903.

quently in the early stages of arteriosclerosis, and should be looked on as a warning of future obliterating endarteritis.

Wagenman's[16] classical and frequently observed case of repeated spasm finally had a spasm that was not relieved, and the arteries remaining closed, the picture of embolus was produced. I doubt if a more than very temporary spasm occurs in healthy vessels with normal blood, but that patients with retinal arteriosclerosis complicated by recurrent attacks of spasm are in special danger of blindness is evident.

Virchow many years ago pointed out the fact that the arterial walls would contract around an embolus, thus making an obstruction more complete. This contraction or spasm was only temporary, and it is only rational to expect that it would be a frequent and recurrent accompaniment of endarteritis.

Zehender was the first, according to Ole Bull, to call attention to arterial spasm, and in 1866 he published a case of repeated spasm of the retinal arteries following the repeated use of an ice-bag.

The treatment outlined for retinal arteriosclerosis should be followed even more carefully where occasional spasm occurs, and when the patient is suffering from an attack, nitrite of amyl may be used to abort it.

DISCUSSION.

DR. JOHN E. WEEKS, New York City, stated that the retinal arteries sometimes show conditions somewhat analogous to arteriosclerosis when sclerosis is not present; one of these conditions is perivasculitis, the white line along the artery is pronounced, but uniform, and there is no lessening in the caliber of the vessel; another is atrophy of the vessels, which only occurs, of course, where we have atrophy of the retina, the white line is appreciable, the caliber is reduced, but the reduction is uniform; another is anemia of the arteries, where the caliber is also reduced. In cases of arteriosclerosis the small vessels and the capillaries of the retina are most profoundly affected. In the larger vessels affected the muscular coat as well as the intima is involved. The caliber of the vessel is reduced, the reduction being irregular. It is possible that spasm might occur where the elasticity of the vessel-wall is still retained, but not otherwise. Dr. Weeks believes that the exudation at the macula resembling albuminuric retinitis may be due to the fact that the general arterial change is more marked in some parts of the body than in others and that the retinal vessels in these cases suffer before the vessels of the kidneys are affected. Finally the vessels of the kidneys will become involved also. In a non-edematous, thin portion of the retina, namely, at the fovea centralis, the vessels of the choroid shine through, but, where there is destruction of the ciliary arteries, we have the edematous appearance at the posterior pole of the eye, as in embolism, but no red spot, because there is no blood in the capillaries of the choroid. Ordinarily, however, a pigmented spot is seen, the pigment of the choroid.

DR. ALLEN GREENWOOD said that among the cases he reported he put a number where the sclerosis of the retinal arteries was present several years before the condition existed in the kidneys in sufficient degree to cause albuminuria, but in all such cases he has seen the kidney lesion appear sooner or later. The appearance of sclerosis in the retinal arteries occurs so frequently in the early stages that such cases must be separated from those in which the retinal changes are due to uremic poisoning. The great danger is subsequent involvement of the kidneys. There is no question but that such patients will probably die of uremic poisoning unless carried off by some intercurrent disease or cerebral hemorrhage. In one of his cases the process has gone on until there is only light perception and as yet no disturbance of the kidney function whatever.

16. Trans. Heidelberg Oph. Soc., 1897.

THE DAVIS MONUMENT.

This statue of Dr. W. E. B. Davis was unveiled Dec. 14, 1904, in Capitol Park, Birmingham, Ala., with fitting ceremonies, by the members of the Southern Surgical and Gynecological Association and by the public. The exercises were public, and thousands of people to whom the lamented surgeon was a familiar figure in Birmingham were present on this memorable occasion. For report of exercises, see THE JOURNAL, January 7, page 58. For an obituary of Dr. Davis, see THE JOURNAL, Feb. 28, 1903, page 595, and March 7, 1903, page 660. The monument is executed in bronze, and is of heroic size, standing nearly nine feet high. The inscription on it is as follows: "Memory of William Elias B. Davis, surgeon. Erected by the Southern Surgical and Gynecological Association, which he founded in 1887. Secretary, 1887-1901; President, 1902. 'He would have been known to the world as a patriot had he not been known as something greater—a physician.'"

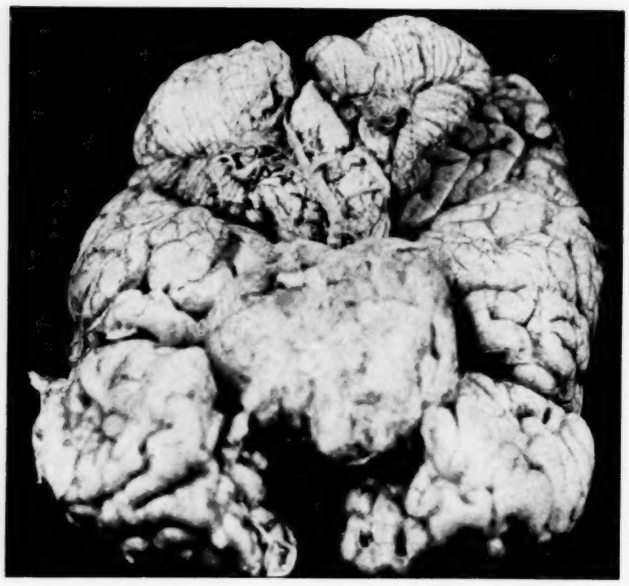
Shall I Operate?—Billroth, in a letter to a Russian surgeon, said: "Before deciding on the necessity for an operation I always propose to myself this question: 'Would you permit such an operation as you intend performing on your patient to be done on yourself?' Years and experience bring in their train a certain degree of hesitancy."

A CASE OF BRAIN TUMOR WITH PROGRESSIVE BLINDNESS.*

W. C. KENDIG, M.D., AND D. I. WOLFSTEIN, M.D.
CINCINNATI.

The following case is deemed of sufficient interest to report on account of its very protracted course and the occurrence of the condition resembling dementia, which rendered the diagnosis of brain tumor very difficult. Dr. Kendig, who had the case under observation in its last stages, reports the following clinical history:

Patient.—J. A. was admitted to Longview Hospital Dec. 12, 1903, with practically no history except that he had been insane for eight months previous to the time of admission, this being his first attack of insanity. The patient died under our care and the case was reported at the meeting of the Cincinnati Neurological Society, when Dr. F. W. Langdon remembered having seen the patient in 1897, and I am indebted to him for the notes of his examination made at that time—July 17, 1897: Age 52, single, occupation, traveling salesman. There are notes about his personal appearance and family history which are not reported, as they present no bearing on the subsequent history of the case.



Personal History.—The patient had the diseases of childhood and contracted at the age of 22, 30 years ago, a luetic infection for which he was given thorough treatment at that time. There is a history of liberal use of tobacco since his eighteenth year, and up to his twenty-second year alcohol was used. The patient is emotional, quite voluble in speech; the speech is in no way impaired. His vision has been failing for the past two years. There is a double optic neuritis.

Motor System: Shows no impairment. There is neither palsy, rigidity nor ataxia. There is a slowness of speech, slight facial tremor, but no rigidity, ataxia nor loss of power; the ocular muscles are intact.

Sensory System: There is no anesthesia, reflexes are active, no disturbance of sensation. The sphincteric function is healthy. The diagnosis at this time was possible paresis, together with progressive optic atrophy. From this time on until he came under my care at Longview he gradually grew worse, physically as well as mentally. There had been progressive loss of vision until only daylight could be distinguished from darkness. On admittance, Dec. 12, 1903, he weighed 180 pounds, but showed the effects of a long confinement. He eats and sleeps well, pulse 68, but the arteries are hard and tortuous with some cardiac enlargement; there is incontinence of urine and feces. There had been no vomiting, headaches, vertigo, and no convulsions. Mentally there is a general feeling of well-being, with a tendency to grandiose ideas; he takes no interest in past affairs and is always happy and contented. There is marked dementia. The knee jerks are slightly exaggerated on both sides, but there is neither ankle clonus nor toe extension. The sense of smell seems to have been intact a short time before death, for he appreciated the aroma of a good cigar. However, on account of his demented condition, it was never possible to obtain satisfactory data with regard to this function. He was subject to periodical attacks of diarrhea, and during one of these attacks he became unconscious and died 48 hours later.

The autopsy was made at the institution by Dr. Mann and Dr. Kendig, and the brain, including the tumor, was given to Dr. Wolfstein for further examination. The accompanying photograph shows the site of the tumor. The autopsy was reported by Dr. Wolfstein.

Autopsy.—At the base of the brain there is a very marked arteriosclerosis of the vessels of the circle and of their smaller ramifications. A very large globular and nodular tumor occupies a position so that a depression has been hollowed out in the region of the infundibulum and the optic chiasm. The optic nerves have been so pressed on as to cause their practical disappearance, but the cranial nerves are intact. The olfactory tracts are present, but show distortion and are small. The site of the tumor is such as would cause complete blindness by destruction of the optic nerves themselves, although the tracts behind the chiasm are intact. The arteriosclerosis was quite extreme and there was evident interference with the healthy function of the cerebral tissue. The tumor was not adherent and could be shelled out from its depression without difficulty, and presented the type of vascular small-celled sarcoma. The tumor was of interest as showing a progressive development over a term of years without the occurrence of any of the general symptoms of brain tumor except blindness and optic neuritis.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

A CASE OF VERY LARGE TUMOR OF THE FRONTAL LOBE. OPERATION; DEATH.*

PHILIP KING BROWN, M.D.
SAN FRANCISCO,
AND
W. W. KEEN, M.D.
PHILADELPHIA.

MEDICAL HISTORY BY DR. BROWN.

Patient.—Miss R. M., aged 19 years and 3 months, was first seen by me June 10, 1903, in consultation with Dr. Smiley, her family physician.

History.—In March, 1903, she had a bilious attack with vomiting similar to attacks that she frequently had had either from overeating or from overfatigue. She was somewhat run down at the time of this attack, which was followed by a period of indigestion. She vomited some bile, the vomiting bearing very vague relation to eating. Two weeks later a paralysis of the left external rectus was noticed and there developed slowly an apparent paralysis of the right external rectus. During the early part of the month of March she did considerable fine hemstitching out of doors while driving. This time for doing it was chosen in order to avoid its being known. During April and May she was under the care of Dr. Smiley, who considered her circulation out of order on account of a rapid pulse and cold extremities, for which he used massage and electricity. Her father states that she had always had a rapid pulse. After April 1 there were several recurrences of

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

the so-called bilious attacks, but the patient was not nauseated excepting during these attacks. There was no constant headache, though she complained of some neuralgic pain and stiffness in the left occipital region and left side of the neck posteriorly. Occasionally she had some left supraorbital neuralgia, which was attributed to eyestrain. Her temperature was often subnormal.

Examination.—June 10. Pulse was 90, volume and tension low; rate and force irregular. Her heart and lungs seemed to be normal. There was no history of cough. Sensation was normal all over the body. The face was examined with particular care. She appreciated heat and cold equally well. Hearing was acute on both sides. The sense of smell was absent in both nostrils and she said that it had been absent from the very beginning of her attack. The field of vision roughly estimated was certainly contracted, slightly more, perhaps, in the left eye than in the right eye. She generally kept her left eye closed on account of the diplopia, but the vision was equally good in both. Examination of the eyes on May 18 by Dr. J. H. Philip had shown vision 20/15 with the eyes used separately. There was a distinct failure to appreciate colors. She did not recognize blue and the Tallquist hemoglobin card seemed to her to be equally dark throughout and she could not tell its color. The right eye was used most of the time, her hand being kept over the left eye when talking to anybody or when looking about. She preferred to lie down most of the time, though she could be persuaded to walk some distance, but muscular exertion was not undertaken voluntarily. Her gait was absolutely normal. There was no Romberg symptom; there was no loss of stereognostic sense and no failure to appreciate the position of her extremities during passive movements. There was no inco-ordination in the upper or lower extremities. The knee jerks were equal and lively. The pupils reacted to light and to accommodation. No muscle of the left eye seemed to be involved except the external rectus. On closing the left eye it was impossible for her to use the external rectus of the right eye normally, but she *appeared to use the other muscles perfectly.*

July 14: During the previous week there had been apparently a progressive loss of vision which seemed to have been going on for a week or two before I saw her without much notice of it being taken. After a dose of calomel on July 12 she had several involuntary movements during sleep. Of late she had been growing more drowsy and desired to sleep most of the time. She was inclined to be a little silly, a condition which her father noticed some weeks before; she talked baby talk. She seemed to be indifferent to her condition, certainly not at all, apparently, concerned about it. There was paralysis of all the muscles of the left eye, particularly of the external rectus and some involvement of the muscles of the right eye. The reflexes were certainly within the normal and were equal everywhere, but were not lively. No changes in the special senses are to be noted except in the olfactory. None of the other cranial nerves are involved.

An attempt was made to examine the eyeground, but without success, both on account of the difficulty of keeping the eye quiet and of a poor lens. The pupils reacted slowly to accommodation and very slightly to light. The left eyeball seemed more prominent than the right. Her headache was not of any moment, differing in no way from those she had usually had. An attack of nausea and vomiting occurred several days previously which may have borne some relation to the excitement from coming home from Santa Barbara.

July 15: A consultation with Drs. Newmark and Moffitt developed nothing new except the existence of a slight left hemianopsia. The patient was so blind in both eyes that she recognized only vaguely objects held in front of her, but certainly these were seen more clearly when held on the right side. There was also a left optic neuritis. The treatment given her at this time was 10 gr. potassium iodid t. i. d. and a half dram of mercurial ointment by inunction daily.

July 22: She had continued the mercury and the iodid and was now taking 15 gr. of the latter t. i. d. She was almost completely blind, apparently so in both eyes. She seemed to see a candle better when held in front of the eyes and the light and outline grew dimmer as it was moved toward the right or left from the center of the face. This condition was the same when the eyes were examined separately.

For a few minutes on July 20 she could see the outline of a figure in the right field when she could not see it at all in the left field. This temporary improvement in vision was observed by the nurse, who stated that the patient was looking at her with both eyes and was able to describe the dress she had on at a distance of four feet when she stood on the patient's right side, but that she could not see her when she stood on the left side.

The examination July 22 did not appear to bear out the possibility of this having been an evidence of a left homonymous hemianopsia. She certainly saw better for a short period, but nothing more definite could be obtained. On directing her to move the eyes to test the muscles, the right internal rectus seemed quite normal; the left internal rectus was impaired, although the left eye followed a finger moved to the right better than the right eye. The left internal rectus was the only muscle of the left eye which responded at all.

Above the left eye, beginning about 1 cm. from the median line and two-thirds of the way up from the eyebrow to the hair line, extending over to the left side for 2 or 3 cm. was an area which was very painful. This was the only painful spot in the entire front of the head.

The urine on July 15 was found to contain a number of casts, hyaline, fine granular and epithelial.

July 30: The patient menstruated as usual and normally during the preceding week. The right disc was becoming paler, and there was progressive neuritis of the left. The area of tenderness over the left eyebrow, noted about a week previously, was becoming progressively worse, and she had a little more headache than usual.

In view of the diagnosis of cerebral tumor it was decided to take the patient to Philadelphia and to place her under the care of Dr. Keen.

Nasal Examination.—As soon as she arrived Dr. George B. Wood made the following report on August 4 of the condition of her nose:

"The left nasal fossa is markedly obstructed by swelling and congestion of the middle turbinal, which presses firmly against the septum. There is a thin line of muco-pus coming from between the septum and turbinal. This is the position in which pus is found when there is suppuration in the posterior ethmoidal cells or sphenoidal sinus. The nasal fossa below this middle turbinal is fairly free. On the right a very similar condition is present, but is not so well marked and is considerably obstructed by deviation of the septum. A posterior rhinoscopic view was impossible because of irritability of the throat. From her history of nasal trouble prior to any possible cerebral symptoms, and from a careful consideration of the above facts I do not feel warranted in saying that there is no indication of sphenoidal disease. On the other hand, I could not prove that there was any pus in the accessory sinuses of the nose. Tests of hearing showed a slight loss in the right ear, most probably due to some disturbance in the sound-perceiving apparatus. The anosmia, which is complete, may be due to the internasal hypertrophy, but looks as though it were central."

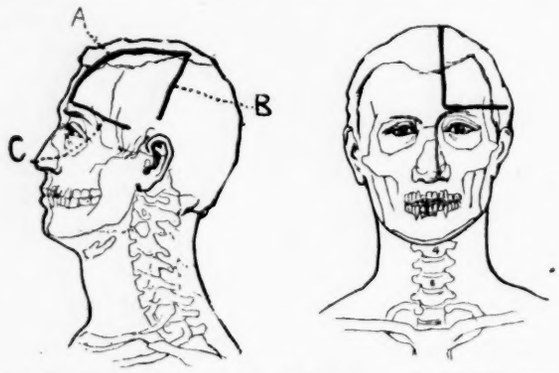
Examination of Eyes.—Dr. William M. Sweet examined the eyes also on August 4 with the following report: "Right Eye.—No light perception to strong electric illumination; pupil 5 mm., reacts sluggishly to direct stimulation, imperceptible to indirect test; no rotation of the ball outward beyond the median line, other movements apparently unimpaired, although on forcible rotation inward the eye turns downward; media clear, margin of optic disc slightly blurred, and retinal veins full but not tortuous; evidence of a beginning low grade papillitis. Left Eye.—No light perception; decided exophthalmos; pupil 6 mm., slight reaction to direct light, but almost imperceptible; indirect reaction lost; rotation of globe nearly abolished in all directions; media clear, marked swelling of the

optic nerve, amounting to 5 D., the swelling and infiltration extending for some distance into the retina; the retinal arteries are small, the veins distended and tortuous, and covered in part by the intense infiltration; on the swollen nerve head and its immediate neighborhood are numerous flamelike hemorrhages. The sensibility of the cornea and conjunctiva of the right side is normal, but is apparently increased on the left side."

SURGICAL REPORT BY DR. W. W. KEEN.

I first saw Miss M. with Dr. Brown on Aug. 1, 1903. Later we had a consultation at the Orthopedic Hospital with Drs. Sinkler, John K. Mitchell, F. X. Dercum and William J. Taylor. Our unanimous opinion was that there was a tumor in the anterior part of the left frontal lobe and that operation, though it held out but little hope, afforded the only possible means of escape. When I first saw her, the left eyeball was markedly protuberant, so that the lids could just be closed over the cornea. Pressure over a considerable area in the left temporal region was painful. Tapping over the head was painful all the way back from the eyebrow to the biauricular line.

Operation.—August 5. I commenced my incision in the left temporal region, a little above the outer end of the eyebrow, continued it internally parallel with the eyebrow and about 1 cm. above it in the hope of avoiding the frontal sinus, and yet getting as near as possible to the orbital plate. This line was 9 cm. long. Then, at a distance of 1 cm. to the left of the middle line, I made my incision posteriorly for 14 cm., then obliquely downward and forward to the temporal region, a distance of 14 cm., making 37 cm. in all. As soon as I made



Figs. 1 and 2, showing lines of incision. A and B were 14 cm. long; C, 9 cm.

the posterior incision, in separating it sufficiently for chiseling, I found that at three points there were small holes in the skull caused by the tumor underneath, which was just visible through the openings. In chiseling through the bone from the line to the temple across the forehead, I found a peculiar discharge, which looked almost like pus, and yet was quite gelatinous, which I found later to come from the frontal sinus. The tumor by pressure had broken through the posterior wall of the frontal sinus throughout its entire length and had also broken through on the inner side into the ethmoidal cells, so that it communicated in both of these ways with the nasal cavity. This led me at once to suspect an infection. I disinfected the parts as soon as the flap was turned down as thoroughly as possible with hot saline solution, scraping away a considerable amount of gelatinous and apparently purulent discharge. I opened the dura and found it very adherent to an enormous underlying tumor which passed backward as far as my opening in the bone. A large part of it was almost diffluent. A large portion of the exposed brain surface consisted of the surface of the tumor, the convolutions having been entirely destroyed. With the finger I scooped out a large portion of the tumor. It was evident that it was such an infiltrating mass that it would be impossible to remove all of it successfully. Accordingly, when I had removed a sufficient amount to relieve the pressure and also to allow closure of the dura, I desisted.

In scooping out the mass posteriorly I evidently broke into the lateral ventricle, for a considerable amount of cerebrospinal fluid escaped, and also I recognized by the finger what I suppose was the arched upper surface of the corpus striatum. During the manipulations to remove the tumor I found that it had destroyed a large portion of the roof of the orbit, and had invaded the orbital cavity, thus producing the exophthalmos. With the rongeur forceps I made a drainage opening at the edge of the bone flap and then packed the large cavity left by the removal of the tumor and a great deal of débris with iodoform gauze. The hemorrhage was free, but not alarming, and was easily checked by the gauze packing. The end of the gauze packing was brought outside for drainage.

Postoperative Notes.—During the next ten days the pulse ranged from 100 to 120 and the temperature from 100 to 101.5 F. Part of the time the urine was voided involuntarily. There was great edema of the entire face for four or five days. She regained her intelligence to a considerable extent on the third day, but her disposition seemed to have changed and she was quite irritable. She would stroke some one of her family or her nurses gently once or twice, but gradually the stroking would become violent and she would suddenly grow very irritable, yet on being spoken to would instantly become pleasant and friendly. She suffered no pain except during the dressings. She did not seem to realize her condition, nor did she ask about it. There was occasionally slight twitching in the fingers of the right hand, and the nurse reported on several occasions twitchings of the entire body.

Her menstruation, which had ceased July 28, recurred on August 7, two days after the operation, and ceased after four days. The packing was removed on August 9, the fourth day. A very large amount of necrotic tissue from the tumor and the brain, together with considerable fluid discharged through the drainage wound. As it was evident that she could not recover, her father decided to take her home on August 15, when her condition was such as seemingly would allow of it very readily. Suddenly at noon on that day her temperature rose to 104 and her pulse to 150 or 160, evidently the result of infection of the wound. This was, of course, to be expected, since the wound cavity communicated with the frontal sinus and the nasal cavity, and, in fact, was already infected at the time of the operation. The discharge was examined bacteriologically and found to consist of pus with a few intercellular cocci. The Gram stain was not tried.

LATER HISTORY BY DR. BROWN.

In spite of her condition, as all the complicated arrangements had been made for her to be taken to her home in San Francisco, her father and I started with her on the evening of August 15. She stood the trip home very comfortably. The infection spread, and in consequence of this I removed several of the stitches in order to secure freer drainage. With this the temperature fell to 100 or below, and the pulse from 130 to 110. She reached home on August 19. For several days after her return she passed all her urine and feces involuntarily. She never suffered any pain. The exophthalmos returned to a greater degree than ever and the tumor protruded through the drainage opening. The infection never spread beyond the area of the operation.

She gradually failed and after being unconscious for several days, died on September 23, a little over a month after her return home and six weeks after operation.

Dr. Charles W. Burr, the pathologist of the Orthopedic Hospital, examined the tumor and pronounced it a sarcoma.

AUTOPSY REPORT BY DR. BROWN.

Sept. 24, 1903. Coverslips and cultures were made from the wound, from the base of the brain anteriorly, from the hypophysis and from the nasal cavity exposed in lifting up the tumor. Immediately following the death of the patient the granulated flap receded until it remained only slightly above the height of the corresponding part of the other side; the enlargement of the left side being reduced fully three-fourths. The flap was not adherent by any but fibrous adhesions anywhere along its course, except where it had been fractured. There was no erosion of the bone flap. On exposing the brain,

the convolutions all over the anterior part, and less markedly over the posterior part, were obliterated. The superficial vessels were deeply engorged. The part involved by the tumor was pale, white and semigelatinous. The tumor had involved also the right frontal lobe to a considerable extent, particularly on its median aspect. The posterior wall of the frontal sinus was entirely gone, as was the whole of the cribriform plate and the median half of the roof of the orbit. When the brain was lifted up a cavity was exposed as large as a good sized walnut, connecting directly with the posterior nasal region. It is possible that the dura may have been torn away in lifting up the brain in an attempt to hold the rapidly disintegrating part together by loosening up the whole of the dura, but, in any event, there must have been some communication between the tumor mass and the nose, although during life there had been no discharge whatever through the nose. The infected area was confined to the anterior and upper part of the surface of the brain, and there was a possible basilar meningitis extending back as far as the hypophysis, but there was no pus accumulation save superficially, at the point of the enclosed parts of the surgical wound. ..

Microscopic diagnosis: Angiosarcoma.

Cultures showed only staphylococci, although diplococci also were found in the smears.

The special features of the case medically were the insidious onset of the symptoms and the comparatively painless development of the tumor to its great size, particularly as it involved the bone so extensively. At the time of the operation the roof of the orbit was eroded so that an opening in it the size of a dime had resulted, and the tumor had also perforated the two plates of the skull as far back as the limits of the frontal bone. The pressure symptoms on the nerves of the eye and its muscles and on the eye itself were conspicuous, but a single dose of 5 grains of phenacetin controlled the only pain of any note from first to last. The vomiting, although characteristic on rare occasions under excitement or in change of position, was a very late symptom and quite insignificant.

The menstrual function was not interfered with, as is occasionally the case with tumors near or at the hypophysis.

EDITOR'S NOTE:—The discussion on the papers of Drs. Kendig and Wolfstein and Brown and Keen will appear next week.

Special Article.

IMMUNITY.

CHAPTER VII.

ACQUIRED IMMUNITY.

When immunity is acquired as the result of an infection it is said to have been acquired naturally (a very different thing from natural immunity). Immunity which is acquired artificially may be active, as in vaccination; or passive, as when diphtheria antitoxin is injected prophylactically.

As an illustration of naturally acquired active immunity, a person who has recovered from scarlet fever, smallpox, plague or typhoid fever, becomes possessed of prolonged protection against subsequent attacks. This is also true of many animal diseases. On the other hand, the protection afforded by an attack of certain other diseases is of shorter duration: cholera, diphtheria, pneumonia, etc., at least in many instances. So far as is known, the protection which is acquired is very specific in character, i. e., a person who has had measles may still have scarlet fever, or an attack of cholera does not protect against a later attack of typhoid fever.

Acquired Active Immunity.

In contrast to the diseases mentioned, there appears to be a number in which an attack confers no evident protection, as gonorrhea, influenza, recurrent fever and malaria. It is also possible that some diseases create a predisposition for a recurrence (erysipelas).

A very important factor in the progress of artificial immunity was the knowledge that a light attack of an infection (scarlet fever, cholera, typhoid, smallpox) was efficient in conferring immunity. Such light attacks are frequently noted sporadically and in epidemics, while occasionally an epidemic is mild in character throughout. As examples may be mentioned the benign smallpox which recently prevailed in the middle Western states and the mild character of the plague encountered in some cities.

In view of this fact it would be desirable if one could produce at will infections which would certainly run a benign course, for the purpose of establishing immunity to possible severe infections of the disease. And it might be possible to so modify the virus injected that protection could be established without setting in motion the actual disease even in a mild form.

Vaccination.

In order to accomplish this, some method must be found which will weaken or attenuate the virus or microbe to the proper degree. An attenuation of this nature had long been practiced with smallpox virus. Before cowpox was resorted to as a source of vaccine, it had been the custom to inoculate the genuine smallpox virus from a patient into the skin of a healthy person. Contrary to the natural expectation, this method did not in very many cases reproduce the disease in all its severity, but, rather, the modified diseases which we call varioloid. This phenomenon may depend on the fact the smallpox virus finds the skin and subcutaneous tissue an unfavorable medium for the development of virulence; a condition which would be equivalent to an attenuation of the microbe. The pathogenicity of the cholera vibrio in animal experiments is affected similarly in subcutaneous injections. It is now generally considered that cowpox is smallpox which has suffered a decrease in virulence because of its passage through the cow. Consequently, when this weakened virus is planted in the skin of man, where it may undergo further attenuation and produce the mildest possible form of modified smallpox, we have an ideal vaccine. Similarly, the anthrax bacillus may be attenuated in its virulence for the sheep by passing it through the dove. This method of decreasing, or in some cases of increasing, the virulence of a micro-organism is known as passage.

Attenuation.

No single method of attenuation is suitable for all micro-organisms. Pasteur found that the bacillus of chicken-cholera became weakened gradually in old cultures exposed to the light and air, so that it could then be used safely as a vaccine; also that the anthrax bacillus when grown at 42 C. was attenuated and did not form spores, and thus became a suitable vaccine for sheep and cattle. Of no less interest to us was Pasteur's method of attenuating the virus of hydrophobia by desiccating the spinal cords of infected animals (rabbits); the altered cords are then available for the immunization of individuals who have been bitten by a rabid animal.

Work of the past decade has shown that successful vaccinations may be made against cholera, typhoid and plague by using for the inoculations cultures which have been made avirulent through artificial cultivation, or those which have been killed outright by heat.

Acquired immunity to toxins has already been mentioned briefly (Chapter IV).

In regard to the nature of acquired immunity to bacteria and to toxins, one may inquire if it is due to the presence of the antibacterial and antitoxic substances which were mentioned in connection with natural immunity. Although normal serum is strongly bactericidal for the typhoid bacillus, the serum of one who has recovered from typhoid fever possesses this power to a much greater degree. As this is true in many other bacterial infections, the new resistance is held to depend on the increase of bactericidal substances in the serum. Similarly in the immunity

Nature of Acquired Immunity.

acquired to diphtheria and to tetanus, the most conspicuous change is a great increase in the corresponding antitoxins. The result is the same, regardless of whether the immunity be produced by a natural attack of the disease, or by artificial immunization with the specific microbe or toxin. Accordingly it seems probable that acquired immunity depends on the presence in the serum of an increased amount of properties which, to a certain degree, may be present normally.

Acquired Passive Immunity.

Inasmuch as it has proved possible by the prolonged immunization of animals with bacteria or toxins to induce a high concentration of antibacterial or antitoxic substances in their serum, it was the natural expectation that if such serums were injected into other animals the latter would thereby be endowed with an increased resistance to the infectious agent against which the serum had special activities (passive immunization). This has been found to be the case with many antibacterial (typhoid, cholera, plague, dysentery, etc.) and some antitoxic serums (diphtheria, tetanus). Unfortunately the protection afforded by the injection of an immune serum is of short duration (from two to several weeks); it is as if a foreign substance had been injected, the fate of which is to be eliminated rapidly. On the other hand, in active immunity the protective substances are formed continuously by the body cells, and for this reason they often exist in some concentration over a long period.

It was, of course, to be hoped that such serums would have a curative value equal to that of their prophylactic power. However, when we consider the individual diseases, it will be seen that the curative power of most immune serums is very low, and that to be successful in any case they must be used at a very early period in the disease, usually at a time preceding the patient's first call to the physician. Happily diphtheria antitoxin is a luminous exception to the rule.

Mention may be made here of the well-known but curious phenomenon that the resistance of individuals is subject to modifications as regards different periods of life. Typhoid fever attacks the adolescent or middle-aged rather than the very young or very old. Active tuberculosis grows less common in the later decades of life. Then we have what are distinctively the diseases of childhood. Some of these instances may be referable to differences in the character of the cell receptors at different ages, while perhaps others are due to a slow immunizing process occasioned by the prolonged presence of non-pathogenic amounts of the proper micro-organisms.

As previously stated, one finds bactericidal and antitoxic substances and various cytotoxins in normal serums. Also we have seen above that immunization with bacteria and toxins gives rise to the new formation of corresponding antibodies.[1]

Immune Cytotoxins.

Investigations have also shown that immunization with other kinds of cells, as erythrocytes, leucocytes, kidney and other tissue cells, cause the formation of immune cytotoxins, which cause recognizable changes in the cells used for the immunization.

Agglutinins.

By systematically injecting an animal with a bacterium or with any tissue cell, agglutinating substances (the agglutinins) are formed and may be demonstrated in the serum. Like other antibodies, they are highly specific for the cell used in the immunization. It is by no means certain that the ability of an individual's serum to agglutinate a microbe bears necessary relationship to his immunity to the microbe, although this relationship certainly exists in some cases.

1. In serum nomenclature, an antibody is some substance in the serum which antagonizes, neutralizes, precipitates or dissolves some other substance with which it comes in contact. Thus diphtheria antitoxin is the antibody for diphtheria toxin; the bactericidal substance contains an antibody for the bacterium which is destroyed; and a hemolysis, an antibody for the red corpuscle which is dissolved. Similarly in immunizing with a bacterium or with a toxin, tissue cell or an albumin, the corresponding antibodies are new formed. Hence we have natural and immune antibodies.

It has been found that some other toxins, aside from those of bacterial origin, will yield by injections specific antitoxins. Such toxins are snake venom, yielding antivenin; ricin, a hemagglutinating toxin from the castor oil bean, yielding antiricin, etc.

The Biologic Test for Species.

Recently what is termed the biologic test for species has assumed prominence. This test may be illustrated: A goat is injected repeatedly with the serum of man. After a number of injections a very minute amount of this goat's serum will cause a precipitate when mixed with human serum, but not when mixed with the serum of any other animal (except, perhaps, that of anthropoid apes). It is so delicate a test that when a small amount of old dried human blood is dissolved in salt solution and treated with the goat serum the precipitate will still occur, and, in view of this fact, the test has become important from the medicolegal standpoint. The wide distribution of this phenomenon among all kinds of animals gives it great biologic significance.

Precipitates.

Kraus found that by immunization with certain bacterial filtrates substances are formed in the serum which cause precipitates in the filtrate. It is further interesting that other albumin-containing substances, as egg albumin or milk, will yield on immunization specific antibodies. An antibody for goat's milk (obtained, for example, by injecting the horse) will cause a precipitate in goat's milk, but not in cow's milk nor in human milk.

Antiferments.

It has also been possible to obtain specific antibodies for ferments: for the peptonizing ferments of bacteria, for emulsin, lab, fibrin ferments, etc. There are, however, very many substances for which serum antibodies can not be obtained; this is true for all substances of known chemical composition, as acids, bases, salts, and for some others the chemistry of which is unknown, as the alkaloids (strychnin, morphin, aconite, etc.)

The Leucocytes in Acquired Immunity.

It was stated in the section on natural immunity that the leucocytes, acting as phagocytes and as resorptive cells, seem to be responsible, at least in part, for natural resistance to an infection. Metchnikoff and his followers have provided us with many observations which are interpreted as showing that the importance of these cells is continued into acquired immunity. These investigators state that in acquired immunity the phagocytes have a much greater capacity for ingesting and killing bacteria and for absorbing and destroying toxins than when the animal is in a state of greater susceptibility. It is also concluded that the serum in acquired active immunity owes its new or more powerful antibacterial, antitoxic and other properties to the leucocytes, which under the influence of the infection have overproduced and excreted these substances into the plasma.

But it is also held that, in passive antibacterial immunity, the immune serum which is injected is potent, because it either stimulates the phagocytes to a greater activity or increases positive chemiotaxis or changes a negative into a positive chemiotaxis. These changes may be due to alterations which the immune serum causes in the bacterial cells.

It is well known that in recovery from many infections (pneumococcus, streptococcus, staphylococcus, etc.) a great hyperleucocytosis appears, and it has been noted in fatal examples of these infections that this marked hyperleucocytosis either fails to develop or, having developed temporarily, eventually recedes. Hence, we have some presumptive clinical evidence in favor of the importance of leucocytes in recovery from certain infections, recovery implying the acquiring of increased resistance.

Emmerich and Loew found that many bacteria produce in culture media, as well as in the animal body, substances which apparently act as ferments and which are able to kill not only the bacterium which secretes the ferment but many others. For example, pyocyanase, the bacteriolytic enzyme

of the *Bacillus pyocyaneus*, dissolves pyocyaneus, anthrax, diphtheria, typhoid, cholera, streptococcus and staphylococcus. These enzymes usually are not toxic for the animals and it is supposed that during the course of an infection, when they reach sufficient concentration, they destroy the bacteria which produced them, thus bringing about recovery. It is claimed also that they, either during infection or as a result of repeated injection of the ferment, enter into a somewhat permanent combination with the albumin of the body, forming the so-called "immune-proteidin," on which acquired immunity depends.

Bacteriolytic Enzymes.

Furthermore, with "pyocyanase-immuneproteidin" it is possible to so immunize a rabbit that a subsequent (12 days) otherwise fatal dose of the anthrax bacillus is harmless.

Although the effects of these "enzymes" on anthrax and on some other organisms have been confirmed by a number of investigators, it is not generally thought that they exercise an important function in acquired immunity or in the recovery from infections. There is the special objection to this theory that it puts immunity on a non-specific basis; i. e., pyocyanase will protect against anthrax, diphtheria, etc., while, in reality, all our clinical and experimental data point to the high specificity of an acquired immunity. It seems more reasonable to assume that these "enzymes" are able, in some accidental manner, as bouillon and many other substances are, to temporarily increase natural resistance.

CHAPTER VIII.

TOXINS AND ANTITOXINS.

The word toxin has acquired a special significance in pathology. According to Ehrlich toxins are distinguished by the following properties:

Ehrlich's Conception of Toxins.

1. They are extremely labile substances which occur as secretion products of vegetable or of animal organisms.

2. The impossibility of obtaining toxins in a perfectly pure form and their great lability have made impossible a knowledge of their exact chemical nature.

3. An analysis of a toxin may be reached at present only through the medium of animal experiments.

4. Immunization with toxins yields antitoxins. It has not been possible to obtain antitoxins for inorganic poisons, glucosids and alkaloids (morphin, strychnin, etc.).

5. In contrast to well-defined chemical poisons, the action of toxins is characterized by a latent or incubation period. That is, following the injection of a toxin, a certain period of time elapses before toxic symptoms appear, and this period is greater than the time logically required for the absorption of the toxin through the circulation.[1] This period can not be eliminated by injecting larger amounts of the toxin, although it can be greatly shortened in this manner. As exceptions, there are a few toxins which apparently act without incubation period (snake venom); these are still to be classed with the toxins, however, because of their power to yield antitoxins by immunization.

6. "The facts make it necessary to assume, as a condition for the poisonous action of toxins, a specific chemical union of the toxin with the protoplasm of the cells in certain organs." . . . "The affinity of other poisons, as the alkaloids, for tissues, depends not on chemical union, but on some such process as solid solution or loose salt formation."

The preparation of soluble toxins is relatively simple. It is necessary only to inoculate a suitable fluid culture medium with a culture of the micro-organism, to allow growth to take place for some days at body temperature, then to pass the fluid through a porcelain or some equivalent filter. The soluble toxins usually may be precipitated from the filtrate by some precipitant, as ammonium sulphate, and preserved in a dried state for a long period. Such a precipitate does not represent the toxin in a pure form, but various proteid substances of the culture medium as well.

Preparation of Soluble Toxins.

The diphtheria and tetanus bacilli, *Bacillus pyocyaneus*, and *Bacillus botulismus*, are the principal micro-organisms which produce soluble toxins.

When the toxins of these organisms are injected into a suitable animal, phenomena similar to those produced by an infection with the organisms themselves are produced. They are in a particular sense specific toxins. Some micro-organisms, however, produce more than one toxin. The tetanus bacillus, for example, secretes, in addition to the toxin causing the nervous symptoms of tetanus, another (tetanolysin, or tetanus hemolysin) which has the power to destroy red blood cells. Ehrlich holds that the diphtheria bacillus produces not only the toxin which causes the acute intoxication of diphtheria, but another of long incubation period which may cause paralysis. Cobra poison has at least two toxins, one which attacks the nervous tissues—a neurotoxin—and another which attacks the erythrocytes; the two may be separated by appropriate measures. As previously stated, the serum of the eel also has a strong neurotoxin and a hemotoxin.

Specificity and Multiplicity of Toxins.

Some micro-organisms produce one or more soluble toxic substances, which it is often difficult or impossible to consider as the actual disease-producing elements of these organisms. Concerning a disease which is so well characterized clinically as tetanus, it is not difficult to determine by inoculation experiment whether one has in hand the specific toxin. The proof is naturally much more difficult in relation to streptococci and staphylococci, for example, where the group of symptoms and the pathologic conditions are not entirely unique for the infection. We consequently lack grounds for considering the hemolysin or the leucocidin (toxin for leucocytes) of the staphylococcus, or the hemolysin of the streptococcus, as the paramount disease-producing toxins of these organisms.

Non-specific Toxic Substances.

Under such conditions, the essential test as to the importance of the toxin must be the immunization experiment; i. e., does immunization with the toxin give rise to the formation of an antitoxin which is efficient in treating an infection with the micro-organism itself? If, for example, a culture of the typhoid bacillus is properly manipulated, a toxic substance free from the bacillus may be obtained in solution. Immunization with this "toxin" yields a serum which is strongly bactericidal for the typhoid organism, but it has no power of reducing the phenomena of typhoid intoxication; hence it is not an antitoxic serum. The dilemma is the following: If the toxin is the true typhoid toxin, it is of such a nature that it does not permit of antitoxin formation; or, on the other hand, it is not a true toxin. A decision between these two points is not possible in the present state of our knowledge.

The Test of Immunization.

(To be continued.)

1. Recent work indicates that the long incubation period of tetanus may depend, at least in part, upon the length of time required for the toxin to reach the ganglion cells through the axis cylinders of the motor nerves.

Desquamation in Typhoid.—J. Vergely reports in the *Archives Gén. de Méd.*, cxciv, No. 34, 1904, a case of typhoid observed at Bordeaux, followed by general desquamation of the skin without any previous inflammation or other symptom suggesting its occurrence. He recognizes the occurrence in typhoid of local desquamations following the rose spots or sudamina, and in some rare instances, like the one reported, of especially severe type of the disease. This lamellar or squamose type of desquamation may occur in any part of the body without previous erythema. He credits this to either a special virulence of the toxin of the disease or to some peculiar functioning of the skin in its elimination. He finds only 6 similar cases on record: 4 reported by Osler, in one of which there was previous erythema, and 2 by Riesman.

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THE PARASITE OF CARCINOMA.

The discovery of the parasite of carcinoma, like the appearance of the sea serpent, has become an almost perennial occurrence during the past few years. The peculiar cell inclusions, which are not infrequently found in malignant neoplasms of epithelial origin, have passed through almost as many aliases as an habitual criminal. They have been classed as protozoa, as blastomycetes, and as rhizopods, and now we are asked to believe that they are plasmodiophoræ. There can be little question, judging from the photographs and plates which illustrate the various articles which describe them, that the same bodies have been described by different observers under the various names mentioned above. The latest contribution to the literature of cancer parasites comes from Robertson and Wade,[1] who, following in the footsteps of Behla and Gaylord, compare carcinoma with the peculiar disease of plant roots called clumps, and claim to have isolated from carcinomata an organism of the plasmodiophora group similar to that which produces this plant disease. The descriptions of Robertson and Wade can not be said to be convincing. They give one the impression that the observers are straining, doubtless unconsciously, to make the description of the so-called parasite tally with that of the known organism which it is supposed to resemble. Then there is the same necessity for special methods of staining, the variation in the size of the cancer bodies, and the general vagueness of description. The description of the culture experiments shows certain noteworthy peculiarities. Their absolute failure to grow in the presence of the small amount of condensation water usually present in agar tubes, their absence from smear preparations, and their presence only in hardened sections of the agar all suggest the possibility that they are merely artefacts, a possibility which the authors do not sufficiently exclude by controls. The reading of such a paper suggests that we are on the wrong track in continuing to search for cancer parasites, especially when we consider the mass of negative observations which have been accumulated, notably by the Boston observers. Certainly there is little analogy between the lesions produced by known microorganisms in chronic disease and those which characterize malignant growths. Gaylord's inoculation experiments with the organism which produces root nodules, plasmodiophora brassicæ, resulted in the production of nodules which were obviously granulomata. Similar results have followed from the inoculation of other organisms which, from time to time, have been described as cancer parasites. When secondary foci have been produced they also have been granulomatous. Such being the case, a comparison with secondary neoplasms seems irrational in the extreme. One can hardly compare a secondary nodule composed of leucocytes and of proliferated tissue cells with a metastasis which imitates the structure of the organ from which a new growth originated.

Attempts to prove new growths infectious by studying their distribution in given districts have also been lacking in conviction, though it can not be denied that in a few instances the distribution of cancer cases has suggested an infectious origin. The fallacy of the cancer house theory, however, has been proved by the careful work of Lyon, who has shown that house collections of cases are far better explained by the influence of heredity and in-and-in breeding than by infection. A study of the last census also showed a distinct relationship between the average age of the inhabitants of a district and the prevalence of cancer; those districts which contained the greatest number of old people having the greatest cancer mortality.

These facts, and others could be adduced, speak strongly against a parasitic origin of new growths. For the present it would seem that they must remain as mysterious as ever, and yet the solution of their origin is probably not beyond the reach of human effort; nor does our lack of knowledge as to their cause preclude the possibility of finding a cure. The great increase in our knowledge of the biochemistry of cells suggests that we may find the antidote, but the present indications are that we must change our line of research.

1. Lancet, Jan. 28, 1905; abstracted in THE JOURNAL, Feb. 25, 1905, p. 662.

THE SURGICAL TREATMENT OF ERB'S PALSY.

Whether one is a "peripheralist" with Bethe, Apathy, Kennedy, Ballance and Stewart, or a "centralist" with Kölliker, Howell and Huber as regards the manner of peripheral nerve repair after suture, is of little practical moment to the clinical worker. The process of regeneration in the peripheral portion of a divided nerve at first may be autogenous, but permanent repair is possible only by union with the proximal segment, whose benign influence in restoring function is by no means small. Secondary suture and anastomosis of divided peripheral nerves are not only invaluable procedures in the treatment of isolated lesions of peripheral nerves of the extremities, is current medical literature attests, but the work, happily, has been extended to the treatment of many different types of peripheral and spinal palsies. This is notably true in operative repair of chronic facial palsy after mastoid disease, and in old cases of Bell's palsy; in poliomyelitis, and in the obstetrical birth palsy of Erb's type. There

have been but few operations on the two latter types of palsies. The brilliant but rather uncertain results in cases of nerve grafting in poliomyelitis deserve the earnest attention of neurologists, pediatrists and orthopedists alike.

Secondary operation on the brachial plexus, although cases in which it has been performed are relatively few in number, has decidedly passed beyond the experimental stage. The cases of Erb's palsy operated on show that excision of the damaged nerves, and final suture of the ends, is followed, after several months, by more or less complete recovery. As a result of a recent collaborative study[1] embracing clinical, surgical and pathologic research in seven cases, some interesting facts have been established. It has been proved conclusively that the main factor in the production of obstetrical palsy is one of undue tension on the nerve trunks. Overstretching ruptures the perineurial sheath and the nerve fibers of the fifth and sixth cervical nerve roots at or near their union in the brachial plexus. The nature of the injury, which has been determined by microscopic analysis of the damaged nerve fragments, proves that nerve regeneration by natural means is impossible, because the ruptured perineurial sheath kinks down on and between the torn nerve strands. Furthermore, the barrier to regeneration is augmented by the organization of the blood clot from the torn blood vessels lining the perineurial sheath and subsequent secondary connective tissue overgrowth. These barriers prevent recovery in all severe cases. The obstetrical lesson taught here is not to overstretch the child's neck in the process of delivery, and its general recognition would be a marked step forward in preventive medicine.

The avoidance of the accident rests largely in dividing the points of application of the pulling force where the latter procedure is absolutely necessary. The fact that Erb's palsy occurs very frequently in vertex as well as in breech cases, shows how unwise obstetrical practice has often been. From the nature of the lesion, the persistence of the partial palsy in these cases is easy to understand. Only the slightest grades of brachial birth palsy could be expected to recover spontaneously; in the others, after a variable period of from three to nine months of medical treatment by carefully graduated massage, electricity and active movements, operation should be considered. As there are no immediate diagnostic tests by which it may be absolutely decided whether a certain nerve has been lacerated or merely contused, the determination of the extent of the lesion is often difficult. Dependence must be placed largely, therefore, on electrical and functional tests, as in nerve injuries elsewhere in the body.

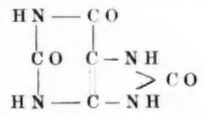
The results of secondary operation on the brachial plexus have been variable; thus Kennedy reports more or less satisfactory results in four of his six cases, while the American authors had a mortality in their first two cases from intercurrent causes. In the latter five, three were very greatly improved and two only to a slight extent. Too short a time has elapsed as yet for a final report. Under improved technic, which is possible only after a larger series of such operations in fairly selected cases, it may be expected that secondary operation on the brachial plexus will take equal rank with other well-established methods in neurologic surgery.

1. Proc. N. Y. Neurol. Soc., April and November, 1904.

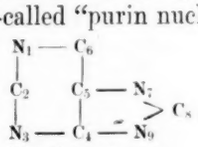
TRUTH AND POETRY CONCERNING URIC ACID.

IX.

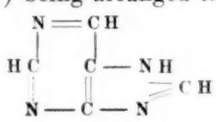
Before going on to a discussion of the conditions of uric-acid formation, uric-acid decomposition and uric-acid elimination in pathologic states it is necessary, in order that the discussion may be intelligible, to review briefly the facts which have been established regarding the chemical nature and physical properties of uric acid and the urates. The empirical formula for uric acid has long been known as $C_5H_4N_4O_3$. As a rational formula, Medicus suggested the structure



and this has been proved by Emil Fischer[1] to be correct. The latter investigator was the one to show that uric acid is only one of a large series of allied substances known as the purin bodies, since they are all derivatives of a substance, which Fischer discovered and made synthetically, known as purin $C_5H_4N_4$. All these purin bodies contain the group C_5N_4, the atoms in this group (the so-called "purin nucleus") being arranged thus:



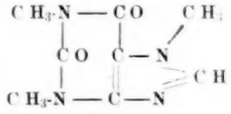
"Purin-nucleus."



Purin.

Each atom of the purin nucleus is given a number as just indicated, and the various substances containing it are best designated according to this scheme. Thus, if the structural formula for uric acid given above be examined, it will be seen that it consists of the purin nucleus with three oxygen atoms attached to it, one to the second atom, one to the sixth atom and one to the eighth atom of the nucleus; the chemical name for uric acid is, therefore, 2.6.8-trioxypurin. Similarly, xanthin, which has the structural formula shown

Xanthin



Caffein

is chemically called 2.6-dioxypurin. Caffein contained in coffee has the same formula as xanthin except that the hydrogen atoms attached to the first, third and seventh atoms of the purin nucleus in purin are replaced by methyl groups; caffein is accordingly designated as 1.3.7-trimethylxanthin. If one hydrogen atom of

1. Fischer, E.: Synthesen in der Puringruppe, Ber. d. deutsch. Chem., Gesellsch., xxxii, 1899, 435.

purin be replaced by the amido group, NH_2, we get adenin (6-aminopurin); or replace one H atom by NH_2 and add an oxygen atom and guanin (2-amino-6-oxypurin) results. Xanthin, hypoxanthin, adenin and guanin are all constituents of the cell nucleus and forerunners of uric acid. Caffein of tea and coffee, theobromin of cocoa and theophyllin are all purin bodies, capable of transformation into uric acid.

Pure uric acid is a light white powder, seen microscopically to consist of rhombic tablets. It dissolves in water with extreme difficulty. At 18° C. the solubility in pure water is 1 to 39,480, that is to say, a liter of a saturated solution contains only 0.0253 gram of uric acid.

The physical chemistry of uric-acid solutions has been carefully studied by His and Paul.[2] The subject is complex and can not be gone into fully here; these recent studies, however, have thrown great light on the conditions of solubility of uric acid and the causes of its precipitation, and have knocked the bottom out of a whole series of ill-founded theories of gout and the so-called uric-acid diathesis. It will be sufficient for the purposes of this review to epitomize the chief facts which have been established.

On dissolving in water, a part of the uric acid undergoes ionic dissociation into positive hydrogen ions and negative ions, just as HCl dissociates in aqueous solution into hydrogen ions (hydrion) and chlorin ions (chloridion). But, since uric acid has two hydrogen atoms that can be replaced by metals, that is to say, since it acts as a dibasic acid, it undergoes dissociation in two stages. The primary dissociation is into the hydrogen ions or hydrion ($H^{\cdot}$) and the univalent anion ($C_5H_3N_4O_3'$); in the secondary dissociation, a part of the univalent anion divides into a second hydrion ($H^{\cdot}$) and the bivalent anion ($C_5H_2N_4O_3''$). The primary dissociation is the greater one; the secondary is so slight as to be almost negligible. The more dilute the solution the greater the degree of dissociation; the more concentrated the solution the greater the number of undissociated molecules, so that in a saturated solution only about 10 per cent. of the molecules are dissociated. The number of undissociated molecules is proportional to the number of hydrogen ions in the solution, and if the latter be increased, for instance by the addition of a dilute mineral acid, the number of undissociated molecules of uric acid becomes immediately augmented, and, since it is the undissociated acid which is extremely insoluble, a part of it will fall out of solution as a precipitate. This explains why the presence of other acids in solutions of uric acid decreases the solubility of the latter.

Corresponding to the two anions above mentioned, the univalent and the bivalent, uric acid yields with bases two series of salts, the so-called urates. Thus, if to a suspension of uric acid there be added a solution of sodium hydrate (NaOH), the uric acid will disappear and, instead, the primary urate of soda (acid urate, biurate, or, better named, mononatrium urate) will fall down as a precipitate; after the uric acid has all been changed in this way the primary urate in turn will be transformed by the further action of NaOH into the secondary urate (neutral urate, or, better, dinatrium urate), and this, being easily soluble, quickly dissolves. Now add any acid to this solution of dinatrium urate and uric acid will at once fall out of solution.

A study of mononatrium urate has shown that it has the tendency to be precipitated in the form of transparent amorphous spheres and that, on standing, these spheres become gradually transformed into needle-shaped crystals; there is no change in chemical composition, simply an alteration of the physical form. The amorphous spheres yield with water certain opalescent (or even clear) false solutions—the so-called colloidal solutions; such colloidal solutions may contain an enormous quantity of urates, far more than can be dissolved in the same amount of water to make a genuine solution. On standing the colloidal solutions gradually give rise to saturated genuine solutions and the excess of urates present then falls out in the form of the crystalline salt.

The English investigator, Roberts,[3] has postulated the existence of a so-called quadriurate of soda, each molecule having the composition ($C_5H_3N_4O_3Na + C_5H_4N_4O_3$); if the substance really exists, it would be better called heminatrium urate, but there is no valid evidence that it does exist. As Tunicliffe and Rosenheim[4] have suggested, Roberts probably had to deal with variable mixtures of uric acid and mononatrium urate. As far as can be seen at present, we have to consider only two sodium salts of uric acid, mononatrium urate ($C_5H_3N_4O_3Na$) and dinatrium urate ($C_5H_2N_4O_3Na_2$).

The bearing of these chemical and physical studies of uric acid and the urates on the problems of the urinary excretion in health and in disease will be obvious as we proceed with this review.

2. His, W., Jr.: Physikalisch-chemische Untersuchungen über das Verhalten der Harnsäure und ihrer Salze in Lösungen, Verhandl. des xviii Kongr. f. inn. Med., 1900, 425; also His, W., Jr., u. Paul, Ztschr. f. physiol. Chem., xxxi, 1900, p. 1.

3. Roberts, W.: On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout (Croonian Lectures), London, 1892.

4. Tunicliffe, F. W., and Rosenheim, O.: Contribution to Our Knowledge of Uric Acid Salts, Lancet, lxxviii, 1900, p. 1708.

THE NECESSITY OF SPECIAL TRAINING FOR ADMINISTRATIVE MEDICAL WORK.

Every state has hospitals for insane, prisons, asylums, the best management of which requires special training and expert knowledge. Our state boards of health should be composed of experts in matters relating to public health. On the state boards of medical examiners one naturally would expect to find expert students of educational questions, able and ready to devise methods of examination in harmony with modern principles of pedagogy. In every city there is a health department of the municipal administration, which is charged with all

questions relating to municipal health matters and which, in the larger cities, has developed into a complex organization requiring the highest degree of expert knowledge and training in public health science.

Every large city has one or more hospitals for its sick poor, for contagious diseases and the like, and here again the best results are obtained from special training and knowledge.

In all these undertakings expert knowledge and special training are desirable, both from the point of view of immediate usefulness as well as from that of organization for future development in the right direction. Probably no physician will question the correctness of the principle involved, which is followed in all our great universities, in educational institutions generally, in commercial and industrial affairs, in short in all undertakings in which men hope to accomplish something worth while and to make progress. In the practical application of this principle to the administration of public institutions and public work of a medical character, however, the medical man in this country seems to have but a lukewarm interest, and hence it is not so remarkable that, in some of our largest cities, public hospitals with hundreds of beds are directed by non-medical men whose first acquaintance with hospital matters dates from the day of their appointment as superintendents. All the evils that may result from entrusting public institutions to the care of men without expert knowledge or training are illustrated in the history of many of our municipal hospitals, and other equally curious administrative anomalies of a similar character are readily cited.

This condition of affairs naturally delays progress, maintains a low degree of efficiency (or a high degree of inefficiency), and lessens the respect of people in general for the medical and allied professions, so far as their public activities are concerned. Because it is right, because it is in the interest of medical and scientific progress, the members of our profession should everywhere place themselves on the side of fitness as against "pull," of knowledge against ignorance, of progress against stagnation, when positions requiring expert knowledge in matters medical and scientific are to be filled.

A COUNTY SOCIETY'S WORK IN PUBLIC DEFENSE.

The work of the Omaha (Douglas County) Medical Society deserves commendation. The society proposes to defend, before the Supreme Court, the decisions repeatedly made in the lower courts denying the right of a corporation to practice medicine. The details are given in our news columns this week. We hope that the Omaha profession may be successful in this endeavor. An "institute" which is apparently able to evade the law, as this one did, is a public menace, and the sooner its status is made clear the better. This is another evidence of what a wide-awake county society can do.

THE CANAL COMMISSION AND SANITATION ON THE ISTHMUS.

The report of Dr. Charles A. L. Reed on the remarkable state of affairs revealed during his recent visit to the Isthmus of Panama, and presented by him in person to the Secretary of War March 2, is published in full in this issue. The revelations will be of deepest interest to the entire medical profession, by whom they will be accepted as a complete justification of the attitude of the President and of Secretary Taft toward the Isthmian Canal Commission.

THE PURE-FOOD BILL AGAIN FAILS.

Congress has adjourned without passing the pure-food bill. Those who deliberately adulterate the food of the people with poisonous substances have won again —with the assistance of certain senators who ought instead to be engaged in the protection of the people. The chief obstructionists have been Senators Platt of Connecticut and Spooner of Wisconsin. Something appropriate should be done to them by their respective constituencies. Senator Heyburn of Idaho and his supporters, Senator McCumber of North Dakota and others, deserve great praise for their manly fight against the specious objections made to the bill. It should bring a blush of shame to the cheek of every citizen of this country to know that dishonest manufacturers have so powerful an influence in the United States Senate that a pure-food law can not be passed. We trust that a wave of popular indignation will force this bill through the next congress. The poor senate has so many moneyed interests to look after that it can not devote its time and attention to the daily food of the common people. But the fight is still on. Let no one be discouraged. Pure-food legislation shall be passed.

ONE RESULT OF BETTER ORGANIZATION.

Since the reorganization of the Michigan State Medical Society a radical change has taken place. It has now become one of the most active organizations in the country, and there has been evidence of this in various ways during the last year or two. One of the recent evidences of what organization can do is illustrated in the nomination of Dr. Sawyer, one of the well-known physicians of the state, as a member of the board of regents of the State University. There has been some friction between the board of regents and the medical profession on account of the admission of those able to pay to free treatment in the University Hospital. At the meeting of the council of the state society some weeks ago a suggestion was made to get a physician on the board of regents, and Dr. Sawyer's name was endorsed. The different councilors went back to their respective districts and succeeded in arousing each of the county societies quietly to take action, and they succeeded in influencing a sufficient number of delegates to get their man nominated. For this office nomination is usually equivalent to election. This is another fact to add to those already on record that the organized profession is a power in politics, as well as in other matters, when it undertakes to do something that is for the interest of the profession as well as for the interest of the people.

REGULATION OF OSTEOPATHY IN NEW YORK.

It is by no means certain that the bill to regulate the practice of osteopathy in New York will meet the defeat which it deserves. At a hearing on the bill in Albany the senate chambers were packed with the advocates for this bill, while the great body of physicians of the Empire State were represented by not over a dozen men to oppose it. This fact shows the indifference of physicians in the Empire State to matters of such vast importance, not only to the profession but to the people. Would that the profession were united and not divided as it is, so that when necessary it could meet such questions with a solid front and be backed by the machinery of a strong organization. We hope the time is not far distant when such a happy state of affairs will prevail. A committee such as that which met the legislators can do little of itself without a strong backing. This it evidently did not have. The bill, as we understand it, would give the osteopaths the same rights that physicians have, except those of giving drugs and of performing major surgical operations. But it is well to remind those interested that the osteopaths are not limiting themselves to their massage methods in those states in which they have the right to practice and in which they have become established. They no sooner get the inch than they take the ell. They limit themselves to their peculiar methods only so long as it is absolutely necessary, and no longer.

A DOCTOR IN POLITICS.

Philadelphia seems to have a very bad name on account of its municipal politics. It has been called "corrupt and contented.". Perhaps this description applies to the people generally. There is one man, a physician, who evidently is not one of the "contented" ones. We received a pamphlet entitled "An Experience of a Republican Citizen of Corrupt and Contented Philadelphia," by Dr. John B. Roberts, who, with the aid of documents, shows the sorry conditions existing in the "City of Brotherly Love." Above all, however—and this is the point to which we wish to call attention—it is to be noticed that a physician has been doing an excellent work quietly and persistently. Dr. Roberts has been in politics, not for what there was in it, evidently, but to help purge his city of some of the corruption that seems to infest it. His work has extended from 1902, when he was appointed overseer of the election, until his final letter to the judge of the court of common pleas, which is dated Nov. 19, 1904. We doubt not the doctor is still at it. We know that Dr. Roberts is not the only member of our profession in Philadelphia who is earnestly striving to bring about a better condition of things. We mention him because he has evidently been one of the leaders. Neither is it only in Philadelphia that there is corruption, or that the physicians are among those who are trying to overcome the corruption. In fact, this is one of the noticeable facts—wherever there is a work of reform, physicians will be found among the leaders. Nine times out of ten their influence is on the better side. Once in a while we find some (here the one-tenth part comes in) who are politicians in the bad sense of the word—in politics for all there is in it. Such need no praise; they get what they are after—sometimes—and need no commendation.

THE ENFORCEMENT OF ANTI-SPITTING LAWS.

In several parts of the country within the last two or three weeks there has been a salutary revival of the crusade against the spitting nuisance. That there has been need of such a move needs no argument, but its occurrence is good evidence of the educational work that has been done within the last two or three years. Before that time prosecutions for this offense were often thrown out of court and it was practically recognized as one of the rights of the citizen that he might spit when and where he pleased. Now, while the victims of arrest express some indignation, they are nevertheless promptly fined, and the public generally is in accord with the authorities on this subject. Necessarily, the enforcement of the law is likely to be more or less spasmodic, but its necessity will diminish with each raid on the spitters in public places. Many of them are merely thoughtless, and an occasional reminder that it may be unsafe is sufficient to break the habit, even if it is only from reading the police court records in the daily press. Others may be more obstinate, but an occasional arrest or fine will go a long way toward inducing reform in manners and morals. As long as only spitting on the sidewalks and in public conveyances, etc., is attacked, there is no great hardship. If a person needs to spit he can go to the curb and spit in the roadway. Of course, this is not the sanitary ideal, but it is at least a long step in advance toward better things. Let the good work go on.

Medical News.

CALIFORNIA.

Dispensary Open.—The College of Physicians and Surgeons, Los Angeles, opened its free dispensary department, February 22. The department is under the control of the trustees of the college.

Bequests.—By the will of Mrs. Leland Stanford $10,000 is devised to the California Woman's Hospital, San Francisco; $10,000 to the Children's Hospital, San Francisco, and $5,000 to the San Jose Sanitarium.

January Deaths.—During January 1,153 deaths were reported, equivalent to an annual mortality of 16.08 per 1,000. Tuberculosis caused 166 deaths; pneumonia, 157; heart disease, 139; cancer, 52; diarrhea, 32; bronchitis, 17, and diphtheria, 16.

Unlicensed Practitioner Fined.—"Dr." G. S. Hollister, Half-moon Bay, was convicted of practicing medicine without a license, and was fined $250. He claimed to be a graduate of the University of Michigan, but had neglected to obtain a certificate from the State Board of Medical Examiners.

Cancer Specialist Acquitted.—F. M. Hogue, San Jose, a so-called cancer specialist, who was prosecuted at the instance of the Santa Clara County Medical Society for practicing medicine without a license, and testified that he removed a cancer from the complainant, was nevertheless acquitted by the jury.

COLORADO.

Convicted of Assault.—Dr. Emmett E. Sonnanstine, Colorado Springs, charged with repeated criminal assaults, was found guilty, February 3, and sentenced to imprisonment for not less than five nor more than six years in the state penitentiary, at hard labor.

Personal.—Dr. Edward B. Trovillion, Gold Hill, has been appointed physician of Boulder County.——Dr. Charles Dyde,

Greeley, has been appointed a district physician of Weld County.——Dr. Sherman T. Brown has succeeded Dr. Thomas H. Hawkins as president of the medical staff of St. Anthony's Hospital, Denver.——Dr. James B. Devlin, Denver, has been seriously ill with pneumonia.

January Health and Deaths.—During January 87 cases of diphtheria, 77 of scarlet fever, 76 of typhoid fever, and 61 of smallpox were reported in the state. This is a decrease of 47 cases of typhoid fever, 21 cases of diphtheria, and 6 cases of scarlet fever, and an increase of 25 cases of smallpox, as compared with the previous month. As compared with January, 1904, the decrease is general—449 cases of typhoid fever, 131 of scarlet fever, 81 of diphtheria and 26 of smallpox. The deaths for the month amounted to 917, equivalent to an annual death rate of 16.63 per 1,000. Diphtheria and typhoid fever each caused 15 deaths, scarlet fever 6, and smallpox 1.

GEORGIA.

Smallpox has invaded Babcock's convict camp in Miller County. Three cases have developed, and all of the convicts in the camp have been vaccinated.

Presbyterians Will Build.—The Presbyterians of Atlanta have decided to erect a new building for the Presbyterian Hospital, at a cost of $50,000, within 5 years.

Personal.—Dr. Walter E. Edwards, Cordele, has been appointed assistant surgeon of the Fourth Infantry G. S. T., with rank of first lieutenant.——Dr. Robert B. Barron, Macon, chairman of the city board of health, was operated on for appendicitis, February 20, and is making satisfactory progress.

IDAHO.

Board Sustained.—In the case of Dr. J. J. Raaf, who appealed from the action of the State Board of Medical Examiners, in denying him a license to practice, District Judge Lyttleton Price decided that the appellant was not entitled to his license, and rendered judgment in favor of the defendant.

District Society Meeting.—The South Idaho District Medical Society will meet in Boise, April 6, following the meeting of the State Board of Medical Examiners.

ILLINOIS.

Smallpox.—During the past week the State Board of Health has inspected smallpox cases in Fulton, Hancock, Sangamon and Vermilion counties.

Conditional Gift to Hospital.—W. H. Parlin, Canton, has agreed to give $2,000 to the building fund of the Canton Hospital, provided that $18,000 additional is raised.

Polyglot Consumption Circular.—The State Board of Health, in compliance with requests, is having printed for general distribution an edition of its circular on the causes and prevention of consumption, in Bohemian. Jews, Poles and Italians have asked to have the circular printed in their respective languages.

Personal.—Captain Amos F. Moore, Dixon, assistant surgeon Ill. N. G., assigned to Sixth Infantry, has been directed to reorganize the hospital corps of that regiment.——Dr. James H. Parcell, an aged physician of Westfield, has been adjudged insane and has been committed to the Illinois Southern Hospital for the Insane, Anna.

Medical Bills.—Senate bill 171, providing for the appointment on the State Board of Health of two regular, one homeopathic, one eclectic, one physio-medical and one osteopathic member, has been favorably reported on by the committee on judiciary department and practice.——Senate bill 171, revising the present Medical Practice Act, providing for the regulation of regular, homeopathic, eclectic, physio-medical and osteopathic practice, is being considered by the committee on license and miscellany.——Senate bill 225, for an act to establish a state board of examiners of registered nurses, and Senate 226, for an act to regulate the practice of dental surgery, have been approved by the committees to which they were referred.——Representative (Dr.) Monroe G. Reynolds, Aledo, has introduced a bill (House 414) making it the duty of the State Board of Health to see that diphtheria antitoxin be kept in each county seat in the state for sale to physicians, and that supplies be furnished to the poor free of charge on the order of the overseer of the poor. This bill has the endorsement of the State Board of Health.

Chicago.

Personal.—Dr. G. Frank Lydston has been made a fellow of the London Society of Authors.——Dr. O. E. Wald has been made surgeon-in-chief to the La Salle Hospital.

Held Blameless.—In the suit brought by H. O. Pearson against Dr. Harry H. Rittenhouse, in which $15,000 damages was claimed because of the alleged neglect of the physician, the jury found for the defendant.

Peril in Hospital Fire.—At a fire which broke out in the Chicago Union Hospital, March 2, the nurses and attendants carried the 14 patients safely from the burning building and then aided in preventing the spread of the flames until the fire companies arrived. The building was damaged to the extent of about $2,500.

Mortality of the Week.—During the week ended March 4, 627 deaths occurred, equivalent to an annual mortality of 15.94 per 1,000. Pneumonia still leads, with 117 deaths; consumption caused 73; heart diseases, 43; violence, 36; bronchitis, 35, and Bright's disease, 33. Smallpox caused 3 deaths; diphtheria, 9; scarlet fever, 3; typhoid fever, 3; measles, 1, and whooping cough, 7.

Grace Hospital Opened.—This new hospital in the manufacturing district of the west side was opened February 18. Dr. Alexander M. Harvey is president of the institution, and the staff is as follows: Drs. C. C. Byrne, John S. Nagel, Frank A. Phillips, Morley D. Bates, J. J. Anderson, Adolph E. Bertling, Alexander A. Whamond, W. Franklin Duckett, Calvin W. Harrison and Howard Crutcher.

Lower Mortality in February.—There were 284 fewer deaths reported during February than during the corresponding month of 1904, and the death rate is a little more than 10 per cent. less. There is still, however, a serious excess over the usual proportion of deaths among infants and young children. Of the total 2,421 deaths at all ages 854 were of children under 5 years of age. This is an excess of nearly 40 per cent. over the average proportion, which is about 25 per cent. of the total.

Pneumonia and Consumption.—There were 162 fewer deaths from pneumonia—nearly 24 per cent. less—than during February, 1904; but the consumption mortality remains substantially unchanged—285 and 278 respectively. Since the beginning of the current pneumonia season, Oct. 1, 1904, up to date, March 4, 1905, there have been 1,299 deaths from consumption and 1,936 from pneumonia, out of a total of 11,350 from all causes. These figures give proportions of 11.4 per cent. of the total mortality for consumption, 18 per cent. for pneumonia, and an excess of 49 per cent. of pneumonia over consumption.

INDIANA.

Osteopath Fined.—"Dr." W. A. Bush, an osteopath of La Grange, was fined $25 for practicing medicine without a license.

State Laboratory of Hygiene.—The bill providing an appropriation of $15,000 for the establishment and maintenance of a state laboratory of hygiene under the direction of the State Board of Health, has passed both houses of the legislature, and has been signed by the governor and made a law.

New Southern Hospital for the Insane.—The governor has signed Senator Newhouse's bill, which appropriates $560,000 for the establishment and maintenance of an additional hospital for the insane in a district comprising 16 of the southeastern counties of the state. A commission of three members will decide the location of the hospital.

Personal.—Dr. Edwin Walker, Evansville, has returned from Europe.——Dr. Robert F. Palmer, Frankfort, has been appointed chief surgeon of the Clover Leaf System, vice Dr. Samuel S. Thorn, Toledo, Ohio, resigned.——Dr. Robert W. Harris has been elected president, and Dr. Charles W. McIntyre secretary of the New Albany Board of Health.——Dr. Charles H. Eckert has been appointed local surgeon at Marion for the Clover Leaf System, vice Dr. Thomas C. Kimball.

Afflicted.—Dr. Walter R. Francis was taken seriously ill while making calls in Marion, February 10, but is convalescent.——Dr. Granville O. Newton, Dana, was thrown from his buggy near Hillsdale, February 19, and sustained a comminuted fracture of the forearm.——Dr. Henry F. Barnes, Indianapolis, fell while attempting to board a street car, February 24, and sustained serious injuries about the head and body.——Dr. Cassius E. Van Matre, New Castle, has been seriously ill with septicemia from an infected wound of the left hand, but is now improving.——Dr. William H. Mills, Boonville, was seriously bruised about the head in a runaway accident, March 1.——Dr. George Knapp, Vincennes, was "held up" and robbed of about $8, near Lyles Station, February 26.

KANSAS.

Personal.—Dr. Harvey A. Warner, Topeka, has been made second vice-president of the National Fraternal Sanatorium for Consumptives.

No Sanitarium for Western Kansas.—The senate, on February 22, refused to pass a resolution providing for a commission to consider the advisability of establishing a sanitarium for consumptives in western Kansas.

Smallpox.—Horton is reported to have 108 cases.——Two students of the University of Kansas, Lawrence, have smallpox and have been removed to the isolation hospital on Addis Island.——Neosho Rapids primary schools have been closed because the teachers are quarantined in Emporia on account of smallpox.

MARYLAND.

Women to Build Hospital.—The Woman's Christian Temperance Union of Crisfield has taken up the work of establishing a public general and marine hospital at that place. It is working steadily to raise funds and is meeting with encouraging success. Crisfield is on Chesapeake Bay and is a great center for oystermen and boatmen.

Emergency Hospital Report.—The third annual report of the Emergency Hospital, Annapolis, shows receipts for the year of $4,220, viz., state $2,500, city $500, county $200, pay patients $620, other sources $400; balance in bank, $700; $1,358 was paid out in salaries and wages. During the year 50 patients were treated. Dr. George Wells is chief of the medical staff.

Baltimore.

Deaths and Births.—During February there were 883 deaths, 26.16 per cent. being under 5. The deaths from consumption and pneumonia showed a gratifying decrease. Only 667 births were reported.

Tuberculosis Lectures.—A series of lectures is being delivered at the various churches under the auspices of the Baltimore Tuberculosis Association, in the education of the public regarding that disease. Dr. Harry Lee Smith delivered the first of the series, March 2, and a senior student demonstrated the tubercle bacilli to the audience.

The Struggle Against Phthisis.—A public meeting of the Maryland Association for the Prevention and Relief of Tuberculosis was held March 7. Dr. Lawrence F. Flick, director of the Henry Phipps Institute of Philadelphia, spoke on "The Hospital and the Dispensary in the Warfare Against Tuberculosis," and Dr. Henry M. Hurd spoke on "Tuberculosis in Its Social Bearings."

MASSACHUSETTS.

Faulkner Hospital.—The first annual report of the Faulkner Hospital, Jamaica Plain, shows that during the year ended Nov. 1, 1904, 324 patients were cared for, for 5,973 days. The total expenses were $22,394, of which $7,712 was derived from payments by patients. The average number of patients daily was 16, in charge of 16 nurses.

Poor Overseers' Report.—During 1904 the agents of the Overseers of the Poor of Boston made 23,000 visits on 2,300 families, distributing $20,000 in cash and $60,000 worth of groceries. Owing to the activity of various charitable organizations this is less than was dispensed 25 years ago, although the population has greatly increased. About one-fifth of this sum was given to families deserted by the husbands, and one-fourth was given to families the heads of which were drunkards.

Personal.—Major Charles M. Green, for many years surgeon of the First Corps of Cadets, Boston, has retired. He was made assistant surgeon in 1881, and retires as a lieutenant colonel. ——Dr. J. H. Wright, director of the Pathological Laboratory of the Massachusetts General Hospital and Instructor in Pathology at the Harvard Medical School, has been awarded the Gross prize of $1,200, given by the trustees of the Philadelphia Academy of Medicine, for his study into the "Biology of the Micro-organism of Actinomycosis."—The Board of Health of Cambridge has chosen Dr. Allen M. Barnes as bacteriologist and has requested the resignations of John J. Scott and Dr. Charles T. Weeks as members of the board.

MICHIGAN.

Blaze at Hospital.—Flint Hospital had a second fire alarm, February 28. The roof took fire, but the fire companies extinguished the fire with a loss of about $150.

Founder's Day.—At the exercises of Founder's day, February 22, the Ann Arbor Medical Society was given a portrait of the late Dr. Palmer, and a reception was tendered Dr. and Mrs. Arthur R. Cushny, who will leave soon to reside in London, England.

National Guard Changes.—Major Julius F. Henkel has been made lieutenant colonel and assistant surgeon general; Captain Vernon J. Hooper has been made major and surgeon; Lieutenant James E. Mead, captain and assistant surgeon, and Dr. Samuel C. Gurney, first lieutenant and assistant surgeon, all of Detroit.

Comparative Disease Prevalence.—For February, 1905, compared with the average for February in the ten preceding years, smallpox and cholera morbus were more than usually prevalent; and pneumonia, inflammation of kidney, erysipelas, scarlet fever, inflammation of bowels, intermittent fever, measles, diphtheria, remittent fever, whooping cough and dysentery were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported present during February at 7 places; whooping cough at 16 places, diphtheria at 64 places, measles at 68 places, typhoid fever at 93 places, scarlet fever at 105 places, smallpox at 106 places, pneumonia at 142 places, and consumption at 251 places. Meningitis was reported present at 8 places less, whooping cough at 6 places more, diphtheria at 19 places less, measles at 5 places more, typhoid fever at 15 places less, scarlet fever at 4 places less, smallpox at 2 places more, pneumonia at 41 places more, and consumption at 16 places less, in the month of February, 1905, than in the preceding month.

NEBRASKA.

Approve License of Outsiders.—The Lancaster County Medical Society, at a meeting held in Lincoln, February 8, adopted the following resolution:

Resolved, By the physicians of Lancaster County, that, whereas some misapprehension exists among people outside of the medical profession, the physicians hereby declare that the present bill (H. R. 165) acted on favorably to-day by the lower branch of the Nebraska Legislature, is not an effort to limit or to destroy the method of practice of any individual or any sect engaged in the care of the sick. The bill is simply an effort to remedy a condition which exists, at present, whereby men and women unable to recognize the character or seriousness of disease are permitted to attend all classes of sick persons. Under the new law, Christian science, osteopathy, magnetic healing, or any other system which possesses virtue in the care of the sick, may be practiced the same as heretofore, but it will be required of such practitioners that they shall first pass an examination before a state board of health, showing ability to recognize and place under quarantine, if necessary, cases of acute or chronic contagious diseases. Physicians are ever at the front in matters pertaining to the health and welfare of the community and state, and wish to commend those members of the legislature who lent their influence and votes to recommending the passage of the present bill.

Can a Corporation Practice Medicine?—The Omaha-Douglas County Medical Society, February 28, took up the question of assuming the responsibility of carrying to the Supreme Court the case of the State Board of Health vs. the State Electro-Medical Institute. The importance of the matter is indicated by the fact that the case carries with it the question as to whether a corporation can be licensed to practice medicine. There is great difficulty in reaching corporations through a suit for revocation of license to practice. The work of these institutes has been carried on impersonally, no name being mentioned in advertisements or contracts. If the State Board of Health brings suit to revoke the certificate of any physician connected with the corporation, the defense is that he has nothing to do with the advertising. The effect of a favorable decision in the case named would be to make these men come out in the open and practice under their own name and responsibility. Dr. A. B. Somers, a member of the state board, thus stated the case: The institute sued a farmer for its fee. His attorneys took the position that a corporation had no right to practice medicine, and hence could not sue for such a fee. The judge of the District Court decided that this position was well taken. A new trial was secured, and the same decision was made by another judge of the same court. At this stage, two members of the society, Drs. Somers and Crummer, took up the case and instituted a prosecution against the institute for practicing medicine illegally. They employed the same attorneys who had defended the farmer and agreed to give them $100. The society then took up the question and paid the fee of $100. Again the case was won, and the judge of the District Court decided that the institute could not legally practice medicine. From this decision the institute appealed to the Supreme Court. The question before the society was as to whether the society should abandon the case at this stage or should guaran-

tee another fee of $100 and about $30 expense to carry the case up and secure a final decision. A favorable decision would forever bar all corporations of this character from practicing, and it was regarded as of vital importance that the matter be pressed. After full discussion, pro and con, it was unanimously decided that the society should guarantee the sum of $130, and should carry the case to the Supreme Court.

NEVADA.

Personal.—Dr. William F. Burnett, Eureka, has been reappointed physician of Eureka County.

Irregular Convicted.—"Dr." F. H. Welchman, Lovelock, accused by the State Board of Medical Examiners of practicing medicine without a license, was convicted, February 3, on a third trial. At the first two trials the juries disagreed.

Warning.—An individual calling himself "Dr. D. W. Smith" and claiming to come from Florence, Colo., has recently visited Eureka, began practice, established a "People's Drug Store," and levanted on February 25 with many articles not belonging to him. He was pursued to Palisade, Nev., and the goods found in his baggage. He was released on payment of $75 and return of the goods taken. He stated that his destination was Vleits, Kan.

NEW JERSEY.

Bequest to Hospital.—The late Mrs. Mary E. Ryle, Paterson, bequeathed $20,000 to the Paterson General Hospital.

To Prevent Sample Medicine Abuses.—There has been passed in Atlantic City an ordinance prohibiting the distribution of medicines, except by giving such samples to persons over twelve years of age who are willing to receive them. A fine of fifty dollars is provided.

Free Antitoxin.—On March 1 the house of assemblymen passed the bill providing for a state laboratory to manufacture antitoxin for free distribution to physicians in the treatment of diphtheria. The bill also appropriates $7,000 for the erection of the establishment and $6,000 is given for annual maintenance.

Personal.—Drs. Nelson B. Oliphant, William A. Clark and Charles F. Adams, Trenton, will go to Vienna this spring.——Dr. Lewis R. Souder, Atlantic City, has been reappointed physician of Atlantic County.——Dr. Benjamin W. McGalliard, Trenton, was committed to the State Hospital for the Insane, February 23.

Anthrax in Swedesboro.—Anthrax has been discovered in a herd of cattle in Swedesboro, and the disease is asserted to be spreading among the cattle of the neighborhood. A man who skinned one of the cows which had died of the malady contracted the disease and is in a serious condition in the Municipal Hospital of Philadelphia. The State Board of Health is making every endeavor to prevent the spread of the malady and has detailed the state veterinarian on this work.

Medical Library at Atlantic City.—A medical library has been established by the Atlantic City Academy of Medicine, and a room has been set apart in the Atlantic City Free Public Library for its books and periodicals. These will, however, be given out only to members of the academy and to their friends. Physicians visiting Atlantic City will be extended every courtesy the library can offer. Contributions on medical subjects will be gladly received and may be directed to Dr. Wm. Edgar Darnall, president of the academy, or Dr. Philip Marvel, chairman of the committee.

NEW YORK.

Bequest.—Under the will of Norton P. Otis $5,000 has been bequeathed to St. John's Riverside Hospital, Yonkers.

Bills Signed by the Governor.—A measure authorizing the Amsterdam water commission to establish ordinances for the protection of the city water supply has been signed by the governor, and also a bill authorizing the medical college laboratory of the City of New York to transfer its property to a university, college or other institution of learning.

The Coroner's Bill.—James Taylor Lewis, counsel for the New York State Medical Association, is encouraged over the outlook for the success of the Elsberg bill. Mr. Lewis says the bill will be brought up for final passage in the senate early in March, and will be speedily pushed through both houses. If Mayor McClellan vetoes it as he did last year it will probably be passed over his veto.

Outsiders Have a Hearing.—Osteopaths, Eddyites, divine healers, faith curists, mental science exponents, etc., assembled at the hearing given the bill regulating the practice of osteopathy and placing it under the jurisdiction of the state regents. John T. McDonough, former secretary of state and member of the Supreme Court of the Philippine Islands, pleaded their cause. Dr. Robert T. Morris of New York City made the principal argument in opposition to the bill. He said that one of the claims of this school was that they were able to move bones by rubbing, and to cure dislocations without the use of the knife. He produced a section of lamb showing the ribs, and called on any one of them to move one of the bones one-fiftieth of an inch.

New York City.

Appeal for Babies' Hospital.—This hospital opened in 1902, and was crowded to its fullest capacity within six months. Last summer one-third of its applicants had to be rejected. The directors now ask for $25,000 to increase the work.

Fatality from Wood Alcohol.—One man is dead, another totally blind, and several have been made ill as the result of drinking what is believed to be "moonshine" wood alcohol whisky, which was furnished to the victims who were acting as professional mourners in a Jewish synagogue on the lower east side.

Clinic on Cancer.—At the close of the course of special lectures by Dr. L. Duncan Bulkley at the New York Skin and Cancer Hospital, Nineteenth Street and Second Avenue, March 29, at 4:15 p. m., there will be a clinic on cancer by Dr. William Seaman Bainbridge of the hospital staff. A number of interesting cases will be on exhibition.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending February 25, 318 cases of tuberculosis, with 164 deaths; 292 cases of measles, with 5 deaths; 261 cases of scarlet fever, with 14 deaths; 258 cases of diphtheria, with 45 deaths; 121 cases of varicella; 5 cases of smallpox, with 1 death; and 49 deaths from cerebrospinal meningitis.

Progress of the Eye and Ear Hospital.—At a meeting of the directors of the Manhattan Eye, Ear and Throat Hospital for the consideration of the plans submitted for the new hospital, it was reported that the hospital contemplated would cost $200,000 more than had been appropriated for this purpose. It was decided to incur the indebtedness. One of the directors then contributed $25,000 to the cause.

For Charity.—Mr. and Mrs. Richard Croker have divided $5,000 among various charities as a memorial to their son. Among the beneficiaries were St. Joseph's Hospital for Consumptives, $500; St. Vincent's Hospital, $500; United Hebrew Charities, $500; Mount Sinai Hospital, $500.——The net proceeds of the German Charity Ball were more than $12,000 in excess of those of any previous ball. Of this sum the German Hospital receives $2,200; St. Mark's Hospital, $1,400; St. Francis' Hospital, $1,400; German Polyclinic, $1,400, and the West Side Dispensary, $1,000.——Two patients have given $10,000 to Roosevelt Hospital for the purpose of re-opening one of the public wards, which has been closed for some time because of lack of funds.

Gonorrheal Infections at the Babies' Hospital.—Dr. L. Emmett Holt reports the following statistics of admitted and acquired gonorrheal infection at this hospital: During the eleven years from 1894 to 1904, inclusive, there were treated 345 cases of gonorrheal infection. Of these 101 were of admitted and 172 of acquired vaginitis; 42 of admitted and 4 of acquired ophthalmia and 3 of admitted, and 23 of acquired arthritis. Of 26 cases of acute gonococcus arthritis it was interesting to note that the finger or metacarpal joints were involved 20 times; the ankle, 18; the knee, 17; the wrist, 12; the toe or metatarsal joints, 10; the shoulders, 9; the elbow, 5; the hip, 1; the temporo-maxillary joint, 1. Those aged three months or under numbered 16; during the second year 3; four to six months, 5; during the third year, 2. Vaginitis complicated 4 of these cases and ophthalmia one case.

News from the Health Department.—The advisory board of the Health Department has asked for funds for a commission to investigate cerebrospinal meningitis. The increase in this disease has been enormous. Five years ago it was hardly to be found in the city. In 1903 there were 271 fatal cases, while in 1904 there were 1,211. In January, 1904, there were 25 deaths from this cause, while in January, 1905, there were 107. In February, 1904, there were 26 deaths, and in February, 1905, there were 149.——The Health Department has contracted for a new steamer, to replace the one damaged at the time of the *Slocum* disaster.——The department has had several

million very scientific anti-spitting slips printed which are to be pasted in the covers of all the books given out to children attending the public schools.——The new building for the department to be erected in Brooklyn will cost about $200,000. It will have a tuberculosis sanitarium, which will be attached to the main building. It will be tiled throughout, no material being used that will harbor germs, and it will be fitted up for scientific experiments.——Dr. Park, the bacteriologist of the health department, has submitted his affidavit as to the effect of subway signs on bacteria. He concluded from his experiments, and from his knowledge of conditions in the subway, that as a practical matter the presence of signs attached to the walls in the subway as a menace to public health is so infinitesimal that they may be disregarded for all practical purposes.

PENNSYLVANIA.

Dangerous Occupations.—Despite the precautions taken to minimize the accidents in the anthracite mines of Lackawanna County, the accidents and death roll increase. In 1902 for each life lost in Lackawanna County, when there were but two mining inspectors, there were 243,693 tons mined. In 1903 the inspectors were doubled and there were 161,898 tons mined. The report for 1904 showed the conditions are infinitely worse. There is a decrease in output and the number of lives lost is greater. The report shows that the amount of coal mined was less and the list of victims increased. The amount of coal mined in 1904 fell to 147,934 tons. This shows that the anthracite industry is fast becoming more dangerous. The reports for the year show that there were 84 fatalities from fall of roof and rock alone, while in the preceding year, with a greater output of coal, the fatalities from these causes were 64. During the preceding year there were 131, and yet for the past year, with its decreased output and correspondingly diminished risk, the total fatalities are increased by 6. In 1903 there were 67 wives made widows. In 1904, when the amount of coal mined was less, and the number of days' work less, the ranks of miners' widows were augmented by 74. In 1903 there were 141 children made orphans, while in 1904 there were 172. Demands are being made that the laws governing mines are inadequate, and that those passed about twenty years ago are practically obsolete.

Philadelphia.

Health Report.—The total number of deaths reported for the week aggregated 559, as compared with 579 for last week, and 628 for the corresponding period of last year. A decrease is noted in the number of deaths from pneumonia. Last week 90 victims were reported, or 13 less than the preceding week. Seventy-two deaths have resulted from the disease during the present week. There have been no cases of smallpox reported in the city since the middle of December last. Typhoid fever is slightly on the increase, 92 new cases being reported during the week. The principal causes of deaths were: Typhoid fever, 11; influenza, 10; tuberculosis of lungs, 72; cancer, 19; apoplexy, 34; heart disease, 51; acute bronchitis, 17; enteritis, 21; Bright's disease, 43, and pneumonia, 72.

Medical Society Receptions.—Dr. E. E. Montgomery was tendered an informal reception by the society named in his honor, of Jefferson Medical College, at the University Club, March 14.——Dr. H. A. Hare was also tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the University Club, March 7.——Dr. W. M. L. Coplin was tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the Southern Club, March 3.——Dr. Philip Coombs Knapp of the Harvard Medical School, Boston, addressed the students of Jefferson Medical College, under the auspices of the F. X. Dercum Neurological Society, on "Brain Tumors and Their Treatment," March 9, in the college building. A reception was given in honor of Dr. Knapp at the Art Club immediately after his lecture.

Hospital Reports.—The Presbyterian Hospital admitted 185 patients during February and discharged 173; the number remaining March 1 was 215; 1,709 cases were treated in the dispensary.——One hundred and nine patients were admitted to the Germantown Hospital, and 114 were discharged; 85 remained; 1,132 were treated in the dispensary.——The Women's Homeopathic Hospital admitted 91 patients to the wards, and treated 971 in the different dispensaries.——The Howard Hospital admitted 39 patients to the wards, treated 570 new patients in the dispensaries, compounded 3,021 prescriptions and treated 92 accident cases.——The Charity Hospital treated 833 patients and compounded 609 prescriptions.——One hundred and two patients were admitted to the Polyclinic Hospital, and 7,642 visits were made to the different dispensaries. The Pennsylvania Hospital admitted 359 patients, treated 3,203 new patients in the dispensaries, and had 4,078 visits made to the various dispensaries; 1,465 cases were cared for in the receiving ward.

GENERAL.

U. S. Consul at Cananea.—Dr. W. J. Galbraith, chief surgeon for the Cananea Consolidated Copper Company, has been appointed United States Consul at Cananea, Sonora, Mexico.

International Agreement for Safeguards Against Plague and Cholera.—March 2 the Senate ratified an international treaty, adopted by a convention of representatives of practically all nations, to agree on uniform safeguards against the invasion and propagation of plague and cholera.

No Malaria in Hawaii.—At a recent meeting of the Hawaiian Medical Association, Dr. Sinclair read a paper on malaria, in which he said: "In spite of repeated efforts, I have never found an anopheles mosquito in Honolulu, and never saw anyone able to produce one. Until I see the anopheles mosquito I will be skeptical of cases of malaria found in Hawaii, and until I see a case in which the plasmodium is demonstrable I will be unconvinced."

The Outdoor Life.—This journal, published at the Saranac Sanatorium, deals with the outdoor life of the consumptive, and the editors publish nothing which does not bear, either directly or indirectly, on this subject. Under the caption, "News of the War on Tuberculosis," a résumé is given of what is being done in this country and in Germany to stamp out tuberculosis. An article in the February issue gives a list of the sanatoriums, hospitals, etc., for the treatment of this disease. The March number has an article on "Nature Study," which should be of special interest to all "outdoor" patients.

To Study Leprosy in Hawaii.—March 4, President Roosevelt signed the bill, H. R. 17984, entitled "An act to provide for the investigation of leprosy with special reference to the care and treatment of lepers in Hawaii." The bill provides that when the territorial government shall cede to the United States, in perpetuity, a suitable tract of land, one mile square, more or less, on the leper reservation, there shall be established thereon a hospital station and laboratory of the Public Health and Marine-Hospital Service for the study of the methods of transmission, cause and treatment of leprosy. The bill also authorizes the Secretary of the Treasury to cause the erection of the necessary buildings and also authorizes the Surgeon General of the Public Health and Marine-Hospital Service to appoint medical officers and pharmacists, and to adopt regulations for the administration of the hospital station.

FOREIGN.

Prize for Work on Professional Diseases of Brewers.—The German Master Brewers' Association has announced three prizes of $100, $50 and $40 for the best work on the recognition of the professional affections of brewers and maltsters, their treatment and prevention, and on hygiene for workers in breweries in general.

London Hospital Endowment.—Mr. Edward Heron-Allen has presented $5,000 to the Westminster Hospital, London, to endow a bed in one of Dr. Murrell's wards, "in recognition of his valuable contributions to pharmacology and of his researches on the action of remedial agents in the treatment of disease."

Society for Social Medicine, Hygiene and Medical Statistics.—A new society with the above name was recently organized at Berlin. It already has 89 members, including many prominent physicians, statisticians, official hygienists, sociologists and others interested in political economy. Dr. Dietrich of the Prussian cabinet and Lassar were elected presidents.

Sanitary Measures in Madrid Churches.—We learn that the municipal authorities of Madrid have ordered that the stone floors of the various churches must be swept out each day with sawdust moistened with a solution of copper sulphate, and that the seats, benches, etc., are also to be wiped with some disinfectant. These regulations have been issued at the advice of the director of the city laboratory.

Amusing Instance of Advertising Irregular Methods.—The public has been officially warned against a certain pseudo-medical institute at Dresden. The latest issue of the official governmental bulletin for the state (Saxony-Meiningen) was accompanied by an illustrated prospectus of this same institute. The affair shows how easy it is for irregulars to find ways of

advertising, notwithstanding the efforts of the authorities to suppress them.

Infringement of Professional Secrecy.—A Berlin physician warned one of his patients, the mother of several children, that her sister-in-law had a "horrid contagious affection." They all lived together, and the children frequently slept with their aunt. The sister-in-law sued the physician for damages. The experts consulted found no trace of any disease, but the physician remarked that a cure in the interim was a matter of course. The physician was fined $5.

Antiquity of the Mosquito Theory.—According to our exchanges, the governor of the Island of Ceylon has found in native works, dating from the sixth century, descriptions of various kinds of mosquitoes which are accused of being the cause of malarial fevers. The ruins and historical records of Ceylon indicate a high degree of civilization in remote antiquity. If this report proves to be true, the new mosquito theory is at least fourteen centuries old.

Fine for Reproduction of Scientific Moving Pictures.—Doyen of Paris brought suit last year against the firm of photographers who had made his series of moving pictures of some of his operations. They had reproduced the pictures as a sideshow at fairs and elsewhere throughout Europe, and Doyen demanded $40,000 damages and publication of the details of the fine throughout the country. He had the cinematographs made to serve solely for instruction in surgery. The courts decided that the photographs were the property of Doyen alone, and condemned the photographers to a fine of $1,600 and publication of the verdict in fifteen journals.

Medical Aspect of the Cervantes Tercentennial.—The physicians of Madrid have arranged a medical festival in May to aid in celebrating the three hundredth anniversary of the publication of Don Quixote. Ramon y Cajal will deliver an address on the "Psychology of Don Quixote and Quixotism"; Oloriz on the "Physical Anthropology of Don Quixote"; Ocaña on "Hygiene in Spain in the Seventeenth Century"; Lazaro on "Botany" at that epoch; Pulido on the "Expulsion of the Moors," and the prime minister of the realm on "Sancho Panza's Governorship of Barataria Island." The festival meeting will be held in the opera house, and will be presided over by a cabinet minister.

LONDON LETTER.

The Financial Relations Between the London Hospitals and the Medical Schools.

At the instigation of the anti-vivisectionists, who alleged that money given to the London hospitals for the benefit of the patients is devoted to the maintenance of the attached medical schools, a committee was appointed by the Prince of Wales, the president of the King's Hospital Fund, which raises a large sum annually for the support of the hospitals—in 1903, $400.000—to inquire into the following questions: 1. Whether any, and if any, how much money given for the relief of the sick poor to the twelve London hospitals having medical schools is contributed by those hospitals directly or indirectly for the maintenance of medical education. 2. Whether any direct or indirect return for such contributions is received by the hospitals from the medical schools, and if so, whether such return is equivalent to the amount of the contributions. The committee has now presented its report—a lengthy document containing many statistics. Between the schools and the hospitals very intimate and complicated arrangements have grown up, and the committee were confronted with almost insuperable difficulties in the preparation of a statement showing the cash value of the balance between contributions in money or kind made by the hospitals to the schools, and by the schools to the hospitals; and this altogether apart from the value of the work done by the schools for the hospitals. In the cases of several of the hospitals (St. Mary's) the hospital and school were founded together, and the school as well as the hospital appears to have been an object of bounty in the mind of the founders; in some cases (University College Hospital) the hospital was founded as an aid to the school; in some cases (Charing Cross and Westminster hospitals) the school buildings were provided, or partly provided, by money subscribed for the specific purpose or for a joint purpose of which the provision of school buildings formed a part; in other cases sums have been contributed to hospitals subsequent to the foundation, of which, to the knowledge of the donors, a portion was applied to the school (e. g., the London Hospital) where a contribution to the school has been made yearly under resolutions passed at meetings of the subscribers entitled to vote under the rules; where the hospital and school (e. g., the Middlesex Hospital) form a single conjoint institution, and contributions have been made to that institution it is obviously impossible to say how much was given for the relief of the sick poor and how much for the promotion of medical education. Frequently the ground on which the school buildings stand is the property of the hospital, but the buildings have been erected by the school. In some cases, parts of the hospital buildings are used conjointly for the purposes of hospital and school, especially in the case of pathologic and bacteriologic laboratories. In the case of King's College Hospital and University College Hospital, the committee report that no money subscribed to them in the year 1903 (the last year of which the accounts are complete) was used directly or indirectly for the maintenance of medical education. In the cases of Guy's and the Royal Free hospitals the committee doubt whether the schools derive any pecuniary benefit from the hospitals. In the case of all the other hospitals—Charing Cross, the London, the Middlesex, St. Bartholomew's, St. George's, St. Mary's, St. Thomas's, the Westminster—contributions, direct or indirect, were made in 1903 to the schools out of the funds of the hospitals. On the question whether any return is made from the schools to the hospitals the committee finds that in some cases the fact that a large body of students is being educated in a hospital diffuses a wide interest in that institution, and thus tends to aid its finances. The presence of students also has a tendency to keep the medical staff on the alert and to counteract the daily routine of duties, and that the opportunity for teaching attracts to hospitals the gratuitous services of the most eminent men in the profession. It was urged before the committee that the great amount of work done without payment by students as medical clerks and dressers constitutes a pecuniary advantage to the hospital; but the evidence satisfied the committee that the expense incurred in hospitals with schools is generally in excess of those in hospitals without schools. The committee, therefore, reports that no saving of expense results. On the question whether the return received by the hospital from its school is equivalent to the contribution to the school the committee say that as the returns are of a general kind and can not be reduced to figures they can not reply categorically, but they conclude that the schools confer considerable benefits on the hospital and the hospitals provide a clinical school for the students so that the one may be set off against the other. The committee recommends that in future the distinction between the hospital and the school should in every case be drawn with such clearness that it may be understood by the public, so that no questions may arise as to the destination of moneys contributed, whether from the king's fund or any other source.

Dirt and Infant Mortality.

Dr. J. Robertson, health officer for Birmingham, has issued an important report, in which he traces a special connection between high infant mortality and dirty houses. In Birmingham, which may be taken as representative of large towns generally, over 3,000 deaths occur annually in infants under the age of one year, as compared with 35 deaths at each yearly period between the ages of 5 and 25. While the general sanitary improvement has resulted in an almost continuous decline of the death rate, practically no improvement has taken place in the infant mortality. In the third quarter of the year, there is a remarkable rise in the infant mortality: in infants under the age of one year there were 1,682 more deaths than in the first quarter. The principal causes of death during the last five years are in order of importance: (1) diarrhea and enteritis, (2) debility and marasmus, (3) bronchitis, pneumonia and pleurisy, (4) premature birth, (5) convulsions. From year to year the death rate varies considerably, and very much in proportion to the duration and amount of warmth in summer. The conditions existing in a large town like Birmingham produce a mortality double that of small towns. Dr. Robertson thinks that a good deal of the difference is due to local customs, certain methods of feeding and rearing infants being handed down from mothers to daughters in particular areas which probably exert a powerful influence for good or evil. In different parts of Birmingham there are striking differences in the infant death rate, the highest rate showing an excess of more than 300 per cent. over the lowest. There is a close connection between the infant mortality and domestic conditions. Many of the small houses are damp and badly constructed, and in unhealthy surroundings. The inhabitants are of dirty habits, which make their domestic conditions still worse. Dr. Robertson thinks that the infants brought up in these dirty places are injured as much by sucking house dirt from their

fingers, toys and clothing as from the dirty milk supplied. Some instructive figures are given as regards suckling. In the artisan class, healthy babies under the age of 6 months are fed as follows: Breast, 56.5 per cent.; breast and bottle, 28.7; bottle only, 14.4. The deaths of 236 children under the age of 6 months from epidemic diarrhea gave the following figures: Breast fed, 10 per cent.; breast and bottle, 10 per cent.; bottle only, 80 per cent.

Enormous Increase of Cancer in the County of Somerset.

From time to time attention has been called in THE JOURNAL to the increase of cancer in England, in recent years. Statistics which have just been published show an increase in the mortality from this disease in the county of Somerset. Among the half million inhabitants, 458 deaths from cancer have occurred in one year, making about 7 per cent. of the total mortality from all causes. No special cause can be assigned for the remarkable increase.

Correspondence.

Quinin in Pneumonia.

PHILADELPHIA, Feb. 25, 1905.

To the Editor:—In reply to your correspondent's inquiry which you have referred to me concerning the use of enormous doses of quinin in pneumonia, as reported by Dr. Galbraith in THE JOURNAL, Jan. 28, 1905, p. 291, I would say that as a matter of theory I should have expected to kill, or certainly to injure, patients if I had given doses of 75 and 100 grains inside of two hours; but when a reputable physician reports the use of the drug in this heroic way in 50 cases without a death either from the disease or from the remedy, I am compelled to revise my theory. My only experience at all comparable is this: Some ten years ago, in the winter, I forget at the moment the exact date, I saw at about 12:30 a. m. a man 35 years of age who had had a chill at 11 p. m., and who, when seen one and one-half hours later, was feverish (temperature about 105 F., pulse about 120), with slight cough, with pain in the right side, and with very slight impairment of resonance and many unquestionable crepitant râles over a considerable area at the right base posteriorly. I ordered 10 grains of quinin to be given at once and 10 grains six hours later. Through some mistake, the patient was given 10 grains every hour for six, or possibly for eight hours, the result being that the probable attack of pneumonia was apparently cut short. At all events, and much to my surprise, the patient showed no ill result—not even tinnitus—from the quinin, and the fever, cough and physical signs disappeared—in an order, and at a speed, that I can not state definitely in the absence of my notes. Yet I have been afraid to repeat deliberately the accidental dosage and I have not placed the case formally on record. The theory that quinin will cut short pneumonia is old, and has been advocated by many eminent men, but the fact that the practice has not become general shows that either the fact is otherwise, or that we have all been too timid in the use of the drug. I am always willing to learn, and if other observers should report similar survivals after equally heroic dosage of quinin, the reports would awaken my keenest interest. Whether or not Dr. Galbraith's cases were correctly diagnosticated, the fact that the patients could take so much quinin and recover is of high importance. If quinin aids chemically to neutralize the pneumo-toxin, either by direct or by indirect (so to speak, complemental or amboceptal, or similar) action, or if it has an agglutinating or bacteriolytic action directly or indirectly, we could understand both the effect of, and the necessity for, large doses. I should like to see experimental work done in the pathologic laboratory, both as to antitoxic and antimicrobic effects, not only with quinin, but with veratrum viride and with digitalis. I am convinced that the proved value of veratrum in pneumonia is not in its action on the heart and the vessels, but that it is in some way connected with the establishment of active or passive immunity: and digitalis, said to be useful in very large doses, may have some similar effect. It may be indirect, as in the stimulation of chemico-physiologic reactions, above and beyond its usual functional manifestations; or it may be a direct chemical action on toxin or cocci. Only experiment can determine this, and I hope that well-planned experiments will be made (1) on the neutralization of pneumotoxin *in vitro* and in animals by the drugs named and by others; (2) on the antipneumococcic effect of the drugs; (3) on the possibility of complement or amboceptor being substituted by the drug in part or in whole; (4) on the stimulation of, or interference with, immunity-chemistry by the drugs, through their action on blood cells, tissue cells, blood-plasma or bacteria. Meanwhile, Dr. Galbraith's report is worthy of serious thought.

SOLOMON SOLIS-COHEN.

Why Patent Medicines Are Dangerous.

STANBERRY, MO., Feb. 24, 1905.

To the Editor:—I have just read the page in the *Ladies' Home Journal* on "Why Patent Medicines are Dangerous,"[1] and I believe the author has struck the key-note to the remedy, which is publicity.

It is not possible for all physicians properly to analyze the contents of these nostrums, but every medical college of standing in the country is equipped for analytical work and could well afford to analyze samples without charge. If this was done the physicians of the country could be depended on to publish the known formulæ, and I verily believe it would not be long before the patent-medicine curse would be a thing of the past.

I trust this question may be agitated, and I believe the remedy is now within our reach. E. T. CAMPBELL.

[COMMENT.—As our correspondent says, Edward Bok asserts in the *Ladies' Home Journal* that the demand for patent medicines would cease if the mystery surrounding them could be ended by the exposure of their secret composition and by showing that there is nothing new or wonderful about them; on the contrary, that they are either inert and valueless, or that they contain patent or poisonous drugs which are dangerous. In this the distinguished editor of the *Ladies' Home Journal* is unquestionably correct; but when he proposes to do this by having these medicines analyzed he discloses his unfamiliarity with this part of the "patent" and proprietary medicine problem. The greater portions of these medicines are extracts of drugs, whose constituents usually are not well-defined chemical substances, but which belong to different classes of proximate principles, i. e., resins, glucosids, organic acids, neutral or bitter principles and, rarely, alkaloids. These principles are for the most part not well-defined, they do not give sharp chemical reactions, and are, therefore, exceedingly difficult to identify even by the most expert chemists. A few of the most important alkaloids, i. e., quinin, morphin and strychnin, are comparatively easily detected, but in the case of other alkaloids, such as those of the mydriatic group, detection, not to mention quantitative determination, is impracticable, except in the most skillful hands. Inorganic salts are, of course, easily determined, but these seldom occur in "patent" or proprietary medicines, or, if they do, they are associated with organic substances on which the complex character of the medicine depends.—THE EDITOR.]

There Was No "Operation on the Wrong Patient."

NEW YORK CITY, March 3, 1905.

To the Editor:—The account you sent me and, indeed, all the various reports that have come to me in the form of clippings, from various parts of the country, are of the most sensational character and have no rational basis whatever. The incident on which they are apparently based is as follows: A day or two previous to my regular clinic day, after careful examination I designated two women for my operative clinic.

1. See abstract on p. 730, March 4, 1905.

They were both cases of retrodisplacement of the uterus, one a simple uncomplicated case, and the other complicated by a tumor of the right uterine appendages. About the character of this tumor there was some difference of opinion between my assistants and myself, they being very positive that it was a case of ectopic pregnancy while I had pronounced it hydrosalpinx. There was some eagerness in the discussion, and each side was anxious to demonstrate the accuracy of his diagnosis. The differential points had been pointed out to the class and diagnostic acumen was more or less publicly at stake. Accordingly I selected the tumor case as the first to be operated on, the other to come as second. It so happened, without my knowledge, that the second case came first before the class. After explaining that this was the case about which there had been a diversity of opinion regarding the character of the tumor, I made the incision through the abdominal wall. The patient was thrown up into the Trendelenburg posture and the retractors inserted with the expectation of displaying to the class the controversial tumor. I was so confident of revealing a tumor that its absence created no little sudden surprise and a bit of amusement at my expense. The explanation of the house surgeon, however, promptly set matters straight, and I proceeded to shorten the utero-sacral and round ligaments to relieve the simple displacement which was present. The same operation was to be done in both cases. This happened February 18. The patient made a most satisfactory convalescence, was discharged from the hospital March 1 and returned to her home. J. RIDDLE GOFFE.

Council on Pharmacy and Chemistry.

DETROIT, MICH., March 4, 1905.

To the Editor:—I have just read the matter regarding the Council on Pharmacy and Chemistry. This meets the request of the Michigan State Medical Society presented at the last session of the House of Delegates of the American Medical Association. The Board of Trustees has appointed a "clearing house for unknown medicinal products." The difference in name does not matter, the idea is identical.

I am sure that you have thus done much to promote organization of the profession. You have started an active effort to help it in some of its perplexities—a help which it will appreciate. Then you have made it possible to place the advertising pages of THE JOURNAL of the Association on a scientific basis—thus furnishing a standard for the new medical journals—and for all medical journals that are willing to be guided by intelligence. It is most gratifying to note that it has been possible to secure the best men in the United States to go on the council, men whose signatures will have the weight of honest experts, men who can be trusted both for their knowledge and for fair treatment. Further, I approve of having a laboratory in connection with THE JOURNAL with competent men working therein—to help separate the true from the false, the helpful from trash.

Medicine has fallen much in esteem because physicians have been so ignorant of what they prescribed. Now the national organization has decided to make it easy to escape the thralldom of such ignorance—hence medicine must rise again to its normal power. I congratulate you on the movement. LEARTUS CONNOR.

Failure to Secure Incorporation of the Association.

NEW YORK CITY, March 6, 1905.

To the Editor:—It will be of interest to the members of the American Medical Association to know that the efforts to secure satisfactory national incorporation of the American Medical Association by special act of Congress at the recent session were not successful. In the judiciary committee of the House the bill was amended so as to limit its effectiveness to the District of Columbia, thus withholding the permission, so much desired in this connection, of transacting business anywhere in the United States. In the judiciary committee of the Senate the phraseology of the bill was amended so as to permit the transaction of business anywhere in the United States. Owing to the shortness of the session, however, and to the demands of the important national matters that especially characterized the occasion, together with other conflicting vicissitudes, the bill as thus amended was not reported for final action.

A detailed report of the efforts of the committee and of the supporters of the measure will be submitted for the information of the Association at a later period.

JOSEPH D. BRYANT,
Chairman of the Committee on National Incorporation.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PROGRESS IN THE CHEMISTRY OF ALBUMINS—A PROTEST AND A DEFENSE.

CHARLESTON, MO., Feb. 9, 1905.

To the Editor:—I have just now read your editorial in THE JOURNAL, Dec. 17, 1904. I have often said that "THE JOURNAL," "OUR JOURNAL," THE JOURNAL of the "A. M. A.," was the journal and that none other could compare with it. Now, just why you should write an editorial like the one entitled "Progress in the Chemistry of Albumins," is difficult to understand. What benefit could such an editorial confer? True, it shows research by you and by others, but where does the benefit come in? It reminds me of something like the following: A man reaches the Atlantic shore and picks up a pebble or grain of sand, and through this pebble or grain of sand he undertakes to analyze the continent. How long do you suppose it would take him to do it? The dabbler in albumin is quite as likely to analyze man as the pebble man is to finish his task. Could you not do greater justice to your readers by telling them what you know of man as a whole? Why dabble with the dirt under a man's toe-nails and forget that he needs food and raiment? You surely can do better than waste your time and that of your readers in such "fol-de-rol" as is contained in that editorial. Of course, such an editorial makes you appear wise and learned, etc., but does such knowledge do any one any good? Suppose a molecule does contain as many "outlandish"-named things as you say it does, does that make its function any more easily learned? Won't you please come down off of your high horse and write something that will aid in curing la grippe, pneumonia and other prevalent maladies? I would rather save the life of one good man or woman than to know all that has ever been written about molecules. Men, women and children are what we have to deal with. Tell us what to do for them when they are sick. If we can cure the man, his molecules will take care of themselves. Now, I trust you will take this "squib" kindly and not "roast" me, but tell just what impression it makes on you. W. P. HOWLE, M.D.

ANSWER.—We print our correspondent's letter in full, for we have no doubt that others of our readers may have had a similar feeling on first reading the article mentioned. We think, however, that our correspondent, and those who have felt similarly, when they consider the various functions and responsibilities of THE JOURNAL, will agree that such articles have their place. While it is true that the majority of the readers of THE JOURNAL are men engaged in the active practice of medicine, eager for medical information that can be applied directly to the treatment of sick men and women, it will be generally recognized by them, we think, that progress in practical therapeutics, in most instances, has to be preceded by an extension of scientific knowledge in the subjects fundamental to medicine. Indeed, the practitioner who does not keep in touch with the progress that is being made nowadays in chemistry, physics and biology, anatomy, physiology and pathology, will often have difficulty in utilizing the immediately practical benefits, through the application to practical work of the new facts of these sciences. THE JOURNAL, therefore, makes the effort to review from week to week the important additions which are being made, not only to practical medicine and surgery, but also to the sciences auxiliary thereto. Our correspondent will also feel more charitable toward articles, such as the one to which he refers, when he recalls that THE JOURNAL numbers among its readers a great variety of medical practitioners, among them many recent graduates with a modern training in physics and in chemistry, as well as practitioners who graduated many years ago before it was possible to acquire that knowledge of the fundamental sciences which is now regarded as desirable. THE JOURNAL, therefore, regards it as its duty to attempt to supply the mental needs of all classes of its readers. It can scarcely be expected that every article in its editorial columns will appeal to all its subscribers, but an effort is made

to supply new information in so many lines that each reader can appropriate what is best suited to himself. We sympathize keenly with our correspondent's impatience at the slowness with which progress is made in medicine. Every medical man is anxious to get forward faster than we do. We should like to tell our readers how to cure every case of "la grippe, pneumonia and other prevalent maladies," and would certainly do so if we knew how; but medical investigators at present seem to be of the opinion that we shall get forward faster in the long run if we make careful, minute analyses of the processes that go on in the human body than if we give up such minute studies and attempt, from the outside, to study "man as a whole." It was through studies of a most abstruse character—researches which for a long time seemed incapable of yielding any practical beneficial results—that the cure for diphtheria by an antitoxin was gradually evolved. Who knows but that out of the complexity of albumin chemistry, with all the difficulties that it presents at present, there may be deduced before very long some practical application which will make us grateful that such studies have been pursued? Should this be the case, will not those of us who have followed, step by step, the advances in this field, be the better able intelligibly to profit by the practical good which such inquiries may yield?

LOCAL ANESTHESIA IN PERINEORRHAPHY.

WAVERLY, MO., Feb. 27, 1905.

To the Editor:—Can you inform me of the technic, the solutions and the worth of the operation of primary perineorrhaphy under local anesthesia? I do not find it mentioned in the text-books, but I have noticed references in various articles on the use of B. eucain, cocain, etc., for this purpose. If the operation is worth serious consideration and is practical, it will prove quite a boon to country practicians who find help difficult to secure, and it will meet the natural objection of the patients to an anesthetic.

W. C. O.

ANSWER.—Barker of London has used B. eucain solutions for various major and minor operations. He uses the following solution:

Distilled water	℥iiiss	100
B. eucain	grs. iii	2
Salt	grs. viii	8
Sol. adrenalin chlor. 1-1,000 m. x		65

He states, in an article in the *British Medical Journal*, abstracted in THE JOURNAL, January 21, page 251, that this amount of fluid, and even more if necessary, may be used in an ordinary case without bad results. In a perineorrhaphy immediately after labor, when the tissues are bruised, very little of the anesthetic should be necessary. He states that by the addition of adrenalin to the solution, anesthesia is produced more slowly, but is of longer duration, and that the adrenalin also produces an anemia of the part to be operated on. To render the skin and areolar tissue insensitive, a larger area must be infiltrated than is to be cut. The solution should be injected in the submucous and subcutaneous tissues. Unless the laceration is of the first degree, primary repair is apt to prove unsatisfactory to both patient and physician. Abstracts of articles on this subject have appeared in THE JOURNAL from time to time—Aug. 27, 1904, page 641, Jan. 7, 1905, page 78, Feb. 4, 1905, page 428—while they do not mention perineorrhaphy in particular, the technic and general principles will apply to that operation.

A LIVER INDICTMENT.

A correspondent sends us a card, on one side of which is the following:

DR. —, —, ————,
DIPLOMATE OF
Biochemistry, Osteopathy, Psychology, Veterinary Medicine, Surgery and Dentistry.
At — — ——— Farm, Near ——— ———
I Restore Health to Man and Beast.

On the reverse side:

I can restore you to health from all your ailments of any nature, chronic or acute, without the use of poisonous medicines—but use only the substance from which the body is constructed. The germs, microbes, and so on, are neither the cause nor the result of the ailments, yet they are eternal life—God's own way of perpetuating health—and all the so-called diseases are but a breaking down of the cell-tissues of the body, due to a defective liver, causing indigestion, which I can restore to perfect health with the tissue cell-salt.

CONSULTATION FREE.
Write or call on me at — — ——Farm, Near ——— ———

LIFE CYCLE OF MOSQUITOES.

MEMPHIS, TENN., Feb. 20, 1905.

To the Editor:—How long do mosquitoes usually live, and how far have they been known to travel from their breeding place? I have noticed that mosquitoes were alive in this building all winter, and last week killed one in the act of "biting." I have also noticed, in the summer, that mosquitoes were conveyed by the cars from the suburbs to the business portion of this city.

ALFRED MOORE.

ANSWER.—The average life cycle of a mosquito is probably a short one. It has been estimated at about two weeks for the common species of culex; others may be longer lived, and the stegomyia has been kept in captivity over seventy days. A few probably hibernate through the winter in houses, etc. They do not fly far, but may be carried great distances by the wind, and are good travelers by public conveyance, railroad cars, etc. The larvæ are still more easily carried in bilge water, water-casks, etc., on vessels, and probably in this way some species have greatly enlarged their habitat.

Marriages.

H. JOHN STEWART, M.D., to Miss Ethel Weaver, both of Chicago, March 2.

JOSEPHINE M. WETMORE, M.D., and Raymond R. Rust, both of Grinnell, Iowa, March 1.

HOMER H. HEATH, M.D., Toledo, Ohio, to Miss Pamelia Pray of Waterville, Ohio, March 1.

ROBERT L. COX, M.D., to Mrs. Margaret Carter, both of Houston, Texas, February 22.

RUFUS J. TEAGUE, M.D., to Miss Margaret Long, both of Roxboro, N. C., February 23.

AUSTIN F. QUIRE, M.D., Lynnville, Iowa, to Miss Carrie Smith of Taintor, Iowa, February 19.

GEORGE F. COCKER, M.D., to Miss Florence Schulze, both of New Orleans, La., February 28.

JOSEPH WILLIAM SMADEL, M.D., to Miss Clara B. Green, both of Vincennes, Ind., February 27.

ABRAM HUGH MOSS, M.D., Lake Charles, La., to Miss Mabel Adelaide Trueblood of Whittier, Cal., March 1.

GUSTAV ADOLF KRAUSS, M.D., to Miss Louisa Edge, both of Jersey City, N. J., in New York City, February 12.

SAMUEL TAYLOR DARLING, M.D., to Miss Nanneril Quincy Adams Llewellyn, at New York City, February 18.

JOHN PATRICK MCGOWAN, M.D., New York City, to Miss Francis Matilda Condict of Jersey City, N. J., March 1.

ARTHUR BARTON CRANE, M.D., Washington, D. C., to Miss Mary Wallace Pollard, at Alexandria, Va., February 28.

OSCAR C. WEBB, M.D., Simmonsville, S. C., to Miss Annie Louise Huff of Cataula, Ga., at Augusta, Ga., February 27.

TRAVALO CHESTER COGGESHALL, M.D., Henry, Ill., to Miss Jessie McCann of Champaign, Ill., at Peoria, Ill., February 11.

Deaths.

WALTER S. CHRISTOPHER, M.D.

Dr. Walter S. Christopher, one of the best-known specialists on diseases of children in the middle West, died March 2 at his home in Chicago, after a lingering illness, from chronic myocarditis and chronic parenchymatous nephritis, aged 45.

He was born in Newport, Kentucky, in 1859, received his early education in the schools of Newport and of Cincinnati, and was graduated from the Medical College of Ohio, Cincinnati, in 1883. During the last year of his college life he was an interne in the Cincinnati Hospital. Even as a student he took great interest in diseases of children, and after his graduation served seven years as assistant in the children's clinic of his alma mater. In 1884 he also assumed the duties of demonstrator of chemistry, and continued in this relation for six years. In 1890 he was called to the chair of theory and practice of medicine in the University of Michigan, Ann Arbor, and a year later came to Chicago, where he became professor of diseases of children at the Chicago Policlinic. A year later he was made professor of diseases of children in the College of Physicians and Surgeons. He was appointed a member of the Chicago Board of Education in 1898, and his term of service was marked by great activity, especially in the direction of child study and the medical inspection of schools. Although his aggressiveness in this direction was criticized, he persevered in the advocacy of his idea, believing that the education of the people to the intelligent understanding of sanitation was one of the chief duties of the medical profession.

He was a persistent and excessive worker, and to his overwork and underrest is due in great measure the breakdown in health from which he was unable to recover. In June of last year he was taken ill with nephritis. Heart complications soon arose, and on March 2 he died suddenly at his home in Chicago.

He was a member of the American Medical Association, the Illinois State Medical Society, Chicago Medical Society, Chicago Academy of Medicine, Chicago Pediatric Society, Chicago Pathological Society, and Chicago Gynecological Society; sometime president of the American Pediatric Society, and an honorary member of the Cincinnati Academy of Medicine.

"The most striking trait of Dr. Christopher, according to those who knew him well," says the Chicago *Record-Herald*, "was his constant seeking for new methods. He had the spirit of an explorer, and where other men were content to follow beaten tracks, he struck out for himself by the shortest route to the desired object. His investigations were minute and exhaustive, and an 'infinite capacity for taking pains' would probably have been accepted by him as a correct definition of genius. Had he studied himself as carefully, as intensely, and as accurately as he studied his patients, he would have been spared many years of usefulness, it is said."

Thomas **Terrill. M.D.** College of Physicians and Surgeons in the City of New York, 1867, formerly surgeon of the Third Regiment, N. G. N. J., city physician of Elizabeth, N. J., coroner and physician of Union County; a member of the Union County Medical Society, died at Alexian Brothers' Hospital, Elizabeth, from cerebral hemorrhage, February 22, after an illness of several weeks, aged 59.

Napoleon B. Woolsey, M.D. Ensworth Medical College, St. Joseph, Mo., 1893, of Braymer, Mo., a member of the American Medical Association, Medical Association of Missouri, North Missouri Medical Association, and Caldwell County Medical Society, died recently, and was buried, February 26, from his home at Braymer.

Lot Green, M.D. Medical College of Indiana, Indianapolis, 1881, a member of the Rush County (Ind.) Medical Society, and Indiana State Medical Society, and secretary of the Rush County Board of Health, died at his home in Rushville, Ind., February 21, from cerebral hemorrhage, after an illness of five days, aged 57.

William Hendry, M.D. Medical Department of Western Reserve University, Cleveland, 1896, of Cleveland, captain and assistant surgeon, N. G. Ohio, was killed in a train wreck near Emsworth, Pa., March 3, while on his way, with his command, to attend the inauguration ceremonies at Washington.

Alvah R. Cummings, M.D. Dartmouth Medical School, Hanover, N. H., 1853, the oldest practitioner of New Hampshire, and the oldest member of the New Hampshire Medical Society, died at his home in Claremont, February 26, from cerebral hemorrhage, after an illness of four weeks, aged 78.

James E. Crisfield, M.D. College of Physicians and Surgeons in the City of New York, 1873, of Dansville, N. Y., some-time president of the Livingston County Medical Society, a trustee and president of the village board and postmaster of Dansville, died in Jacksonville, Fla., February 21, aged 53.

David Thompson, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1888, formerly reeve of Cayuga, Ont., and later a member of the city council of Hamilton, Ont., died at his home in the latter city, February 19, after a long illness, aged 41.

Glen O. Hardamann, M.D. Medical Department of the University of Missouri, St. Louis, 1848, surgeon during the Civil War, died at his home in Gray Summit, Mo., January 14, from cerebral hemorrhage, after an illness of six weeks, aged 80.

Adolph Zipperlen, M.D. University of Tübingen, Germany, 1840, a surgeon of the One Hundred and Eighth Ohio Volunteer Infantry during the Civil War, died at his home in Cincinnati, February 28, after an illness of several weeks, aged 87.

Silas Burbank, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1864, president of the Kennebec County Medical Association in 1875, died suddenly in Mount Vernon, Maine, from heart disease, February 26, aged 65.

Henry M. Lanier, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, for many years city marshal of Columbus, Miss., died at his home in that city, February 19, from heart disease, after a short illness.

David Le Roy, M.D. Medical College of Ohio, Cincinnati, 1848, major and surgeon of the Ninety-first Illinois Volunteer Infantry during the Civil War, died at his home in Streator, Ill., February 27, from senile debility, aged 83.

George Lederman Hyslop, M.D. New York University, New York City, 1850, one of the founders of the Demilt Dispensary, died at his home in New York City, March 2, from heart disease, after an illness of four days, aged 79.

Hiram Wiggins, M.D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1838, one of the oldest physicians of Onondaga County, N. Y., died at his home in Elbridge, N. Y., February 20, aged 90.

John Porter Wetherell, M.D. Western Pennsylvania Medical College, Pittsburg, 1887, city physician of the eastern district of Allegheny, Pa., died at the home of his sister in Coytesville, N. J., February 19, after a long illness.

Rufus S. Morgan, M.D. Memphis Hospital Medical College, 1894, a member of the American Medical Association and one of the best-known physicians of Southwest Arkansas, died at his home in De Queen, February 22.

Walter T. McCoy, M.D. College of Physicians and Surgeons, Baltimore, 1885, of Partridge, Kan., was struck and instantly killed by a Rock Island train at a crossing three miles east of Partridge, February 28, aged 47.

Delaney P. Hicks, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1878, physician of Kaufman County, Texas, died at his home in Kaufman, February 26, from pneumonia, aged 53.

Addison M. Ferry, M.D. Marion-Sims College of Medicine, St. Louis, 1898, died at his home in Parkersburg, Iowa, February 26, from the effects of an overdose of medicine, after an illness of two days, aged 30.

Peregrine C. Jones, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1888, died at his home in Kansas City, Mo., February 28, from cerebral hemorrhage, after an illness of two days, aged 71.

J. R. Wooten, M.D. a member of the Barren County Medical Society, died at his home in Finney, Ky., January 10, from cancer of the stomach, after an illness of three months, aged about 60.

Edward P. Seeley, M.D. University of Nashville (Tenn.) Medical Department, 1869, died at his home near Bowling Green, Ky., February 6, from pneumonia, after a short illness, aged 56.

Thomas W. Barrett, M.D. College of Physicians and Surgeons in the City of New York, 1897, died at his home in Portland, Ore., February 19, from typhoid fever complicated with pneumonia, aged 32.

James Harmon Gentry, M.D. Missouri Medical College, St. Louis, 1884, died at Mesa, Ariz., January 20, from progressive pernicious anemia, after an illness of about two years, aged 50.

David H. Scott, M.D. Cleveland Medical College, 1855, for many years professor of surgery in that institution, died at his home, Fruit Hill, Chillicothe, Ohio, February 25, aged 76.

Edith Barker, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1897, for five years pathologist to the State Hospital for the Insane, Norristown, Pa., died recently.

Isaac C. Edson, M.D. Albany (N. Y.) Medical College, 1867, a former member of the legislature from Broome County, N. Y., died at his home in Windsor, N. Y., February 22, aged 81.

Thomas J. Marlin, M.D. Jefferson Medical College, Philadelphia, 1873, died at his home in Tarkio, Mo., February 18, from pneumonia, after an illness of three days, aged 61.

Elijah Luther Van Cleave, M.D. Rush Medical College, Chicago, 1895, died at his home in Rockville, Ind., February 18, from pneumonia, after an illness of nine days, aged 49.

Edward A. Hering, M.D. University of Maryland School of Medicine, Baltimore, 1855, died at his home in Harrisonburg, Va., February 25, from cerebral hemorrhage, aged 78.

Edward F. Brodie, M.D. University of Nashville Medical Department, 1872, died at his home, Dripping Springs, in the Olmstead District, Logan County, Ky., February 21.

P. Thomas Markey, M.D. Albany (N. Y.) Medical College, 1893, died at his home in Schenectady, N. Y., February 22, from gastritis, after an illness of one week, aged 33.

Samuel Watson Truitt, M.D. University of the State of Missouri Medical School, Columbia, 1895, died at his home in San Francisco, February 16, from influenza, aged 35.

Jonathan R. Johnson, M.D. McGill University Medical Department, Montreal, 1880, died at his home in Spring Valley, Minn., from erysipelas, February 27, aged 49.

John F. Lesh, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876, died at his home in Seneca, Kan., February 23, from heart disease.

Cordelia O. Hickox, M.D. Ohio, 1873, pioneer woman physician of Iowa, died at her home in Cedar Rapids, February 25, after an illness of one week, aged 77.

Robert L. Price, M.D. University College of Medicine, Richmond, Va., 1900, died at his home in Boone's Mill, Va., February 22, from typhoid fever, aged 25.

John P. Richardson, M.D. Medical College of Ohio, Cincinnati, 1866, of Sabetha, Kans., committed suicide by hanging himself in his barn, February 26.

William Moore, M.D. Gross Medical College, Denver, Colo., 1892, died in Cripple Creek, Colo., from pneumonia, February 23, after a short illness, aged 50.

George R. Metcalf, M.D. College of Physicians and Surgeons in the City of New York, 1874, of St. Paul, Minn., died in Orvieto, Italy, March 1, aged 57.

J. Thomas Sim, M.D. Jefferson Medical College, Philadelphia, 1860, died at his home in Libertytown, Md., February 28, from disease of the liver, aged 66.

Johann Jacob Eisenhut, M.D., for many years a practitioner of Central City, Colo., died in St. Anthony's Hospital, Denver, Dec. 28, 1904, aged 104.

Joseph T. Prewitt, M.D. 1855, died at his home in Elgin, Texas, February 8, from cerebral hemorrhage, after an illness of one month, aged 83.

Chalmers A. Parker, M.D. Kentucky School of Medicine, Louisville, 1883, died at his home in Fort Worth, Texas, February 23, aged 47.

Jacob Simmons, M.D. Cincinnati, died at his home in O'Neill, Neb., January 27, from tabes dorsalis, after an illness of four years, aged 66.

George D. Boon, M.D. University of Michigan Department of Medicine and Surgery, 1870, died at his home in Chetopa, Kan., February 20.

Frank M. Pitts, M.D. Jefferson Medical College, Philadelphia, 1881, formerly of Hubbard City, Texas, died at Highland, Cal., Oct. 2, 1904.

Rufus K. Langson, M.D. Illinois, 1883, died in his office at Chadron, Neb., February 26, from a self-inflicted gunshot wound of the head.

J. Austin Miller, M.D. Kentucky School of Medicine, Louisville, 1885, of Oakland, Cal., died at Houston, Texas, February 24, aged 47.

Conrad Bardill, M.D. Humboldt Medical College, St. Louis, died recently at Monrovia, Cal., after an illness of six months, aged 68.

Bernard Eugene Bigler, M.D. Pennsylvania, 1899, of Philadelphia, died in Colorado, from tuberculosis, February 20, aged 26.

Michael W. Peters, M.D. Detroit College of Medicine, 1893, died in Owosso, Mich., February 25, from an overdose of cocain, aged 35.

Samuel Morrill, M.D. Harvard University Medical School, Boston, 1852, died at his home near Farmville, N. C., February 25.

James Alva Dingman, M.D. Cincinnati, 1871, died recently at his home in Spring Valley, N. Y., and was buried, February 27.

Charles W. Crowell, M.D. Chattanooga (Tenn.) Medical College, 1892, died recently at his home in Marshall, Texas.

Daniel Caulkins, M.D. Cleveland Medical College, 1863, died at his home in Toledo, Ohio, February 20, aged 79.

Frederick Tischer, M.D. University of Leipzig, Germany, 1882, of San Francisco, died recently at Santa Cruz, Cal.

Charles C. Taylor, M.D. Ohio, 1890, died at his home in Leetonia, Ohio, February 27, from tuberculosis.

Frederick A. Schell, M.D. Cincinnati, 1856, died at his home in Spencer, Ind., February 17, aged 79.

Joseph H. Snyder, M.D. Syracuse (N. Y.) 1854, died at his home in Cameron, Mo., February 23.

Deaths Abroad.

A. A. G. Guye, M. D., professor of otology at Amsterdam, died there January 15, aged 65. It was by his efforts and advice that the government of Holland introduced the examination of school children for the purpose of detecting the presence of adenoid vegetations. Among his numerous publications were some on the functional brain troubles due to mouth breathing, for which he coined the term "aprosexia." During the last year or so he was president of the society which publishes *Janus*, the international archives for the history of medicine and medical geography.

J. Scriba, M.D., professor of surgery at Tokio from 1879 to 1902, and chief of one of the hospitals until his death, died January 3, aged 56. He was born in Germany and was trained under Czerny; his wife was a Japanese. He published a number of works on surgery, anthropology and botany.

G. Ludwig, M.D., at the head of the German Hospital in London for many years, died at Venice in January. He retired from practice about ten years ago, and has won a name as a connoisseur and collector in art and antiquities.

A. Bobrow, M.D., professor of surgery at Moscow, and author of several popular text-books.

J. A. Serrano, M.D., professor of anatomy at Madrid.

Book Notices.

A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in One Volume; Profusely Illustrated; Two Color Plates; Full Indexes. Cloth. Pp. 1000. Price, $5.00. Chicago: Cleveland Press. 1905.

The author has attempted to classify diseases of the nervous system in accordance with the neuron doctrine. He states that in his opinion the unity of the nervous apparatus and its functions is not taught as thoroughly as it should be. Among other things he has endeavored to make plain from the standpoint of modern psychology, many of the psycho-physical manifestations of the nervous system. The following is his classification: 1. Neuronic diseases. The functional neuronic diseases (neuroses and psycho-neuroses): *a*. Those of the cerebrospinal system. *b*. Those of the sympathetic system. The organic neuronic diseases are subdivided into those of the afferent system, those of the efferent system, those of the afferent and efferent systems. 2. Non-neuronic diseases (interstitial and vascular troubles affecting the neurons secondarily): *a*. Of the spinal cord and its membranes. *b*. Of the peripheral nerves. *c*. Of the brain and its membranes. 3. General intoxications with special nervous symptoms. Although this classification is altogether in harmony with the author's plan and is a fairly good one for working purposes, its superiority to the old arrangement of diseases of the brain, cord and peripheral nerves is questionable. For the last word has not yet been spoken on the neuron doctrine. Just at this moment the very foundation of the neuron theory is being so thoroughly shaken that even its closest adherents are compelled to make repairs here and there. The volume is rather bulky for frequent use, but this would be no fault were it unavoidable; but in this case considerable condensation would be of value. There are several much smaller hand-books on nervous diseases in the English language that contain quite as much information as this one. It is certainly much easier to be verbose than to be concise, especially when an author writes so eloquently. Still, a treatise on nervous diseases should not be a rhetorical effort anent the neuron theory, however readable such a style may make the work. On opening the book at random we are inclined to question for whom it was written; the author tells us that it is intended for the practitioner and for the student, but it reads rather like a popular novel and seems to be addressed to the general reader. Sometimes even there is a sacrifice of accuracy for a mere figure of speech. With some unimportant exceptions the pathology is correct and safe and the pathologic anatomy is well illustrated by plates selected from the best works. The descriptions of symptoms and of the general features of the various diseases are sufficiently full and generally clear. Diagnosis, especially differential diagnosis, receives attention suf-

ficiently adequate for guidance in practice. The chapter on therapeutics is quite complete.

GUIDE TO THE EXAMINATION OF THE THROAT, NOSE AND EAR, for Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond., Honorary Surgeon, Birmingham Ear and Throat Hospital. Cloth. Pp. 152. Price, $1.75. New York: Wm. Wood & Co. 1905.

This is a small compact volume of about 150 pages. It contains a number of illustrations, several of which are drawn from original dissections by the author. It is well written, states facts only, and it may be truly said that it is what it purports to be—A Guide to the Examination of the Throat, Nose and Ear. It is designed primarily for the student and for the general practitioner, but the specialist also undoubtedly will find much of value in it.

Miscellany.

Infants in Sweat Shops.—About the limit in the atrocities of sweat shop labor is the case of a female infant, eighteen months of age, who, according to the newspapers, was discovered at sweat shop work in a tenement house. The baby rolled balls in paste for the mother to work with.

Influence of Pregnancy on the Heart.—According to Pouliot the normal heart is not affected during pregnancy; it does not become hypertrophied, its dilatation is rare and arterial hypertension does not appear until labor. With the augmentation of blood in the system there is an increase of circulatory capacity. He says in the *Arch. gén. de Méd.* that the healthy heart is perfectly capable of meeting normal conditions during pregnancy and even the excessive strain of normal labor. When, however, organic lesions exist the condition is otherwise.

One Value of Organization.—Nine months ago the physicians of our county organized a society, writes E. L. to the *Alkaloidal Clinic*, January. It has made us better physicians and it has shown us how to unite on matters of finance. Not that we are charging too high, but that we have stopped cutting prices. In settlement with a patron yesterday this understanding saved me almost $40, and the patron was perfectly satisfied. All he wanted to know was that I was not charging more than the other physicians, and when he learned that we all charged the same he was satisfied.

Contests of Endurance Prohibited.—Recently an ordinance was passed by the New York City Board of Aldermen prohibiting contests of endurance in the future. This action is taken to put a stop to six-day contests in bicycle and walking races, which of late years have been so frequent. The new law limits such contests to a period not exceeding three hours. This is one of the most sensible ordinances we ever heard of being passed by a board of aldermen, says the editor of the *Medical Age*, February 10. Other cities would do well to pass similar ordinances.

Italian Production of Olive Oil.—Italy produced 86,119,700 gallons of olive oil during the year 1903-4, or 37,248,000 gallons more than in 1902-3, 1,585,200 gallons more than in 1901-2, according to *Moniteur Official du Commerce*. Much of this year's olive crop was being abandoned because of its abundance. It hardly paid to pick the fruit in some parts; beside, the drought from July to October had ravaged Italy and seriously affected the quality. The fruit, though abundant, is small and poor, hence of little value for making oil. The cultivation of the olive is increasing constantly though slowly. The area devoted to olives was 2,690,963 acres in 1903.

A Nitrogen Gas Well.—Haworth and McFarland, at a meeting of the Geological Society of America, Philadelphia, Dec. 30, 1904, gave an account of a well in Kansas which yielded gas which refused to burn. On examination this gas proved to be over 71 per cent. nitrogen. They stated that they were unable to advance any theories as to how so large a volume of nitrogen became entombed in the ground. *Science*, commenting on this, remarks that under the view that the earth's atmosphere and hydrosphere represent volatile matter forced out from the interior of the shrinking globe, this phenomenon is simple and natural. It is one of many indications that the interior supply of gases is not exhausted and that the atmosphere is still growing.

Dr. Osler as a Joker.—When Dr. Osler issued his dictum on the uselessness of the average man who has passed his fortieth and sixtieth birthday, says the *Nebraska State Journal*, it must have warmed his soul to see how vigorously the solemn editors took the bait and made off with it. Dr. Osler, let it be known, is an incorrigible wag. One of his previous exploits was the publication that 33 1/3 per cent. of the women students in medicine in Johns Hopkins University had married into the faculty. After the sage editors had swallowed the hook, bob and sinker, he unsmilingly came forward with the further information that there were three of these students in the university, and one of them had married a professor!

Treatment of Pseudarthrosis by Subcutaneous Injections of Blood.—Bier of Bonn, in *Medicinische Klinik*, I, No. 1, reports that subcutaneous injection of blood had a marked action in promoting bony union in three cases of pseudarthrosis consecutive to fracture. He is convinced that the presence of blood between the ends of a fractured bone aids in promoting bony union by favoring the production of callus. Union is much slower and less complete when there is no hemorrhage after a fracture. He injected from 15 to 25 c.c. of defibrinated blood in the cases reported. They came under observation about fourteen months after the fracture. A callus formed in less than a month and consolidation was soon complete.

A Biologic Station in Greenland.—A Danish botanist has proposed to his government the appropriation of funds to establish a biologic station on the southern coast of Disko Island, North Greenland. The estimated cost of the undertaking, according to *Science*, will probably be about $9,400, which will include the erection of buildings, purchase of motor boats, sledges, tents and other material for short expeditions, instruments, books, etc. The running expenses, including salaries, are estimated at $2,960. The geographical position of Greenland, and the similarity of conditions with those of the northernmost part of this continent must necessarily appeal to Americans and, until a permanent biologic station can be established in a similar locality in Alaska, those interested in Arctic research will find the proposed Danish institution a place of interest.

New Medical Journals.—Three new medical publications on our desk have not yet been mentioned. *Medical Notes and Queries*, published in Lancaster, Pa., and edited by Dr. Henry W. Cattell of Philadelphia, is devoted to small items chiefly of interest to laboratory workers and to practitioners who use the modern methods of precision in diagnosis, etc. The intention of the editor is to make a specialty of correspondence and of queries on various subjects which are not fully covered by the writer's text-books. The *California Medical and Surgical Reporter*, edited by Dr. Charles P. Wagar of Los Angeles, once of Toledo, Ohio, is a promising monthly medical journal with general contents, including articles, society reports, editorials and news. From Savannah Ga., comes another new paper, the *Georgia Practician*. Martin Cooley is the editor, and his selection of matter for the first issue and his manly introduction give promise that the paper will be valuable to the Georgia practician.

Needless Remedies.—It is time the physicians of this country called a halt. Month after month we are literally deluged with a multitudious number of new and needless remedies—remedies that only find their need in the financial profit of the manufacturer. Were it not for the help of thoughtless physicians this would have long ago been brought to a stop. Not that we decry the work of the scientific chemist in his search for new methods and new drugs, for we all feel his need and acknowledge our depth of gratitude for his labors

in the past, but this exploitation of various combinations of well-known drugs, and of those which have not received the seal of scientific approval ought to stop. It is only the ready sale procured that encourages this industry. If physicians would study carefully the National Formulary there would be less need of combinations of medicines put up by "manufacturing" chemists. Any good druggist can put up a National Formulary prescription as well as any one else. Show us any preparation that has a large sale on account of its supposed good properties and we will show you its analogue in the National Formulary, which will have the identical effect.—*Medical Recorder.*

Useless Knowledge.—The president of a British engineering society recently made the following statement: "No knowledge is worth obtaining for its own or any other sake, unless it is or will be useful to men." The assertion is very attractive in appearance, and it has been hailed with much enthusiasm by a number of journals devoted to applied science. Apparently it is supposed to crush for all time the lovers of pure science as distinguished from the "bread-and-butter" variety. But we have been unable to discover anything either new or remarkable in the statement. But who is to decide whether a particular bit of information is likely to be useful or not? Speaking for mankind in general, there is no assertion which can be made with greater safety than that there is no such thing as useless knowledge. Nearly all great discoveries have been ridiculed as useless at some time during the world's history, and he must be a bold man who dares assert that even the refinements of mathematics and the humblest of the innumerable synthetic organic compounds will never be of use to humanity. For all we know, the German professor who proposed to devote a lifetime to a study of the muscles in a beetle's leg may yet turn out to be a benefactor of humanity. The individual should, however, examine the statement from another angle. Humanity can afford to wait for history to prove the value of a discovery; not so the indivisible fraction of mankind who has not time enough for that. Unless he is willing to labor unselfishly for the good of future generations he must select such knowledge as will prove useful to him. There are those who claim that no information can be useless even to the individual, but that assertion we may venture to question. For instance, of what use is a knowledge of esoteric philosophy to the business man who can not find time to keep up a passing acquaintance with himself?—*Pharmaceutical Era*, February 2.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., **Minneapolis.**

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

South Carolina State Board of Medical Examiners, Columbia, April 24. Secretary, W. M. Lester, M.D., Columbia.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Vermont January Report.—Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, Feb. 7-9, 1905. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of applicants examined was 2, both passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Lavall University	(1904)	63.6
University of Vermont	(1904)	74

Association News.

NEW MEMBERS.

New members for the month of February:

ALABAMA.

Gavin, G. E., Mobile.
Jordan, Wm. M., Birmingham.
Owen, C. N., Mobile.
Scales, W. W., Mobile.
Stevenson, F. C., Montgomery.

ARIZONA.

Kaull, L. P., Jerome.

ARKANSAS.

Bradley, Wm. Thos., Monroe.
Lewis, John W., Keo.
Robertson, J. A., Hot Springs.

CALIFORNIA.

Aiken, Geo. H., Fresno.
Bock, Charles, Los Angeles.
Cotter, P. Gregory, Los Angeles.
Carson, J. K., Los Angeles.
Conrad, D. A., Santa Barbara.
Clark, Wm. S., San Francisco.
Dillon, E. T., Los Angeles.
Dowdall, R. J., Crescent City.
Grissim, J. D., San Jose.
Hagadorn, Mary E., Pasadena.
Kelsey, J. Edson, Berkeley.
Kirkpatrick, J. L., Los Angeles.
Lehmann, G. W., San Francisco.
Lamkin, Burt B., Fresno.
Lendrum, B. A., Fort Bragg.
Mallery, J. H., Eureka.
McNaughton, Jas. A., Blue Lake.
Murphy, C. W., Los Angeles.
McArthur, R., Los Angeles.
McNeil, H. C., Los Angeles.
Mills, H. W., San Bernardino.
Quint, S. J., Los Angeles.
Schmitz, John, Los Angeles.
Seymour, J. H., San Francisco.
Tate, C. Francis, Los Angeles.

COLORADO.

Davis, A. L., Durango.
Neubert, Christian L., Denver.
Reckly, Mary D., Fort Collins.

CONNECTICUT.

Adams, H. E., Hartford.
Chatfield, R. B., Granby.

DISTRICT OF COLUMBIA.

Clifford, Addison B., Washington.

FLORIDA.

Dewberry, W. C., Pensacola.
DuBois, H. K., Port Orange.
Esch, J. P., Goodall.
Gwynn, G. H., Tallahassee.
Mantey, Karl, Eustis.
Morris, S. A., Jacksonville.
Simpson, H. L., Pensacola.
Thomason, F. E., Live Oak.

GEORGIA.

Boland, F. K., Atlanta.
Roberts, J. B., Atlanta.

ILLINOIS.

Brooks, T. C., Chicago.
Cohn, Eugene, St. Jacob.
Friduss, Samuel L., Chicago.
Hillebrand, C., Freeport.
Hellebrandt, Frank J., Chicago.
Keogh, Chester H., Chicago.
Poland, B. I., Danville.
Peterson, Wm. A., Chicago.
Roach, D. C., Burlington.
Scheel, A. M., Belleville.
Shumway, E. B., Chicago.
Ward, Todd P., Mt. Vernon.

INDIANA.

Cunningham, S. R., Indianapolis.
Coleman, J. W., Petersburg.
Kamman, Herman H., Columbus.
Markley, Stephen C., Richmond.
Weis, Wm. D., Hammond.
Yoder, Albert C., Goshen.

INDIAN TERRITORY.

James. Ed. D., Haileyville.
Shelton, J. W., Wynnewood.

IOWA.

Barkalow, D. G., Ellsworth.
Harkness, Gordon F., Davenport.

KANSAS.

Anderson, Andrew G., Salina.
Bartlett, W. E., Belle Plaine.
Brooks, Stanley H., Mound City.
Klepinger, Jno. C., Herington.
Nordstrom, Louis O., Assaria.
Peak, Frank, Pratt.

KENTUCKY.

Crenshaw, J. W., Cadiz.
Howell, J. D., Vine Grove.
Parker, Walter C., Versailles.
Quinn, William A., Henderson.
Stuart, Joseph M., Owensboro.
Ward, R. W., Chilton.

MAINE.

Conneen, Thos. F., Portland.
Emery, Harry S., Portland.
Hebb, Angus G., Bridgton.

MARYLAND.

Fisher, Chas. T., Princess Anne.
Robinson, I. P., Baltimore.
Ulman, S. Jay, Baltimore.
Wainwright, Chas. W., Princess Anne.

MASSACHUSETTS.

Cowles, Wm. N., Ayer.
Feeley, Chas. P., Cambridge.
Grover, Arthur L., Hyde Park.
Hutchinson, C. M., Waltham.
Ilsley, Fred R., Medford.
Jackson, James M., Boston.
Mayhew, O. S., Vineyard Haven.
Pillsbury, Boyden H., Lowell.

MICHIGAN.

Annis, L. C., Cedar Springs.
Cavanagh, D. G., Muskegon.
Foster, Horatio L., Reed City.
Fleischhaur, D. S., Reed City.
Meade, C. H., Olivet.

Potter, Thos. H., Detroit.
Rockwell, A. H., Kalamazoo.
Rowland, Russell S., Detroit.
Sanford, T. M., DeWitt.
Simpson, C. E., Pontiac.
Wood, Richard H., Montrose.
Yerkes, Louis N., Garden.

MINNESOTA.

Beck, Walter M., Hanley Falls.
Hixson, R. B., Cambridge.
Olson, Alof A., Minneapolis.

MISSISSIPPI.

McInnis, Jno. M., Brooklyn.
Rehfeldt, F. E., Vaiden.
Thompson, Chas. C., Columbia.

MISSOURI.

Chesmore, Harry P., Princeton.
Cobb, Chas. D., St. Louis.
Evans, Samuel M., Bloomfield.
Mills, H. P., Sheridan.
Prinz, Hermann, St. Louis.
Ross, Lonidas C., Winona.
Rininger, W., St. Louis.

MONTANA.

Owings, J. Hood, Deer Lodge.
Sutherland, E. L., Sheridan.
Tucker, W. Q., Crow Agency.

NEBRASKA.

Fox, Chas. H., Clarks.
Pennington, Jas. L., Republican City.
Park, B. F., Omaha.
Truelsen, Thomas, Omaha.

NEW HAMPSHIRE.

Bates, Jno. Harold, E. Rochester.
Cutler, Chas. H., Peterboro.
Horne, B. Frank, Conway.
Miller, Elmer M., Woodeville.
Pender, Geo. Edw., Portsmouth.
Provost, A. M. J., Berlin.
Tolles, C. W., Claremont.
Woodman, Milton S., West Lebanon.

NEW JERSEY.

Piskorski, Abdon, V., Jersey City.

NEW MEXICO.

Shuman, J. R., Aztec.

NEW YORK.

Bischof, L. F., New York City.
Nathan, P. W., New York City.
O'Neil, D. E., New York City.
Stubbs, Roland H., Waterford.

NORTH DAKOTA.

Glaspel, G. W., Grafton.
Williamson, Geo. M., Ardoch.

OHIO.

Barricelli, G., Cleveland.
Bown, S. J., Claiborne.
Ford, Clyde E., Cleveland.
Forsythe, A. M., Maynard.
Heck, Stanton, Salem.
McDonald, D. M., Akron.
McGonigle, M. B., Ashley.
Oxley, Frances Marion, Cincinnati.
Ravl, Katherine J., Gallion.
Talmage, J. B., Columbia.
Williams, Martha R., Cincinnati.

OKLAHOMA TER.

Farber, Julius E., Cordell.

OREGON.

Campbell, Wm. M., Portland.
Coffman, Walter R., Portland.
Day, Floyd M., Eugene.
House, William, Mt. Tabor.
Robnett, J. H., Salem.

PENNSYLVANIA.

Bryner, J. H., Ickesburg.
Boon, Wm. T., Philadelphia.
Best, Margaret B., Meadville.
Binkley, G. K., Orwigsburg.
Evans, T. H., Philadelphia.
Fretz, John E., Easton.
Good, Albert Park, Philadelphia.
Hollister, F. P., Scranton.
Irwin, William, Philadelphia.
Jeffers, Benj. B., Steelton.
Jackson, J. D., Connellsville.
Kutz, W. L., Weissport.
Keene, Chas. E. L., Harrisburg.
Kind, Geo. P., Lancaster.
Knight, T. Howard, Philadelphia.
Lammer, F. J., Philadelphia.
Lee, W. Estell, Philadelphia.
Lowenburg, Harry, Philadelphia.
Longcope, W. T., Philadelphia.
Lilley, W. M., Brownsville.
Marcellus, M. B., Philadelphia.
Macfarland, F. H., Philadelphia.
McClary, Sam'l, Philadelphia.
Nickel, J. Edw., Glen Moore.
Peters, J. M., Steelton.
Rupp, Frederick A., Lewistown.
Rovno, Philip, Philadelphia.
Richards, F. H., Philadelphia.
Riechard, L. N., Brownsville.
Stover, Isaac F., Philadelphia.
Shearer, Alfred Luther, Duncannon.
Smith, W. Clive, Wilkesbarre.
Ulman, Jos. F., Philadelphia.
Weirich, Collin R., Washington.
Yeager, F. N., Philadelphia.

RHODE ISLAND.

Darrah, R. F., Newport.
Ham, Albert E., Providence.
McKenna, John B., East Providence.

SOUTH DAKOTA.

Countryman, Geo. E., Aberdeen.
Duguill, J. O., Springfield.
Haustein, H. H., Lead.

TENNESSEE.

Happer, J. D., Jackson, Tenn.

TEXAS.

Alexander, J. M., Abilene.
Crosthwait, W. L., Holland.
Evans, A. H., Eagle Pass.
Elliott, B. S., Augusta.
Glass, John Wiley, Cass.
Gallagher, F. W., El Paso.
Poindexter, John G., Bridgeport.
Smith, W. J. S., Cash.
Wright, Edward F., Royse City.
West, Warren F., Waxahachie.

VERMONT.

Aldrich, W. J., St. Johnsbury.
Platt, Mary Mixer, Shoreham.

VIRGINIA.

Michaux, S. N., Richmond.
Purdy, James J., Sulphur Mines.

WASHINGTON.

Purman, Rose Mildred, Seattle.
Wiltsie, S. F., Seattle.

WEST VIRGINIA.

Sampson, W. H., Mount Hope.

WISCONSIN.

Clementson, J. A., Lancaster.
Ellsworth, H. E., Appleton.
Hutchins, Sylvester E., White hall.
Hinckley, H. G., Merrill.
Kersten, A. M., DePere.
Moulding, F. C., Watertown.
O'Brien, J. M., Oregon.
Smith, E. J., Neenah.
Schultz, F. W., Merrill.
Taugher, J. P., Milwaukee.
Taugher, A. J., Milwaukee.

WYOMING.

Finney, H. S., Rawlins.
Strader, G. L., Cheyenne.
Wayson, James T., Honolulu.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 4, 1905:

Howell, Park, asst.-surgeon, relieved from duty at Fort McPherson, Ga., and ordered to Manila, P. I., with Sixteenth Infantry, for duty in Philippine Division.

Barney, Charles N., and Gosman, Geo. H. R., asst.-surgeons, the former relieved from duty at Fort Schuyler, N. Y., and the latter at Fort Caswell, N. C., February 23, and ordered to Manila, P. I., for duty in Philippine Division, on transport to sail from San Francisco about March 31.

Field, Peter C., asst.-surgeon, relieved from duty at Fort Robinson, Neb., and ordered to Manila, P. I., for duty in Philippine Division.

Farr, Charles W., asst. surgeon, relieved from duty at Fort Mason, Cal., and as attending surgeon and examiner of recruits, San Francisco, and assigned to duty as transport surgeon on the *Thomas*, and on arrival at Manila, to report for duty in Philippine Division.

Murtagh, John A., asst.-surgeon, relieved from duty on transport *Thomas* and ordered to Fort Mason, Cal., for duty and as attending surgeon and examiner of recruits, San Francisco.

Craig, Charles F., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and ordered to Manila, P. I., for duty in Philippine Division.

Smith, Herbert M., asst.-surgeon, relieved from duty as transport surgeon on the *Sherman* and ordered to the U. S. Army General Hospital, Presidio of San Francisco, for duty.

DeLoffre, Saml. M., asst.-surgeon, ordered to accompany Second Lieutenant Lesher, Second Cavalry, from Fort Assinniboine, Mont., to Government Hospital for Insane, Washington, D. C.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and assignment to duty in Philippine Division, revoked.

Straub, Paul F., asst.-surgeon, reports arrival at Fort Myer, Va., with squadron Ninth Cavalry. Left Fort Leavenworth, Kan. February 25.

Ekwurzel, Geo. M., asst. surgeon, reports departure from West Point, N. Y., with detachment of cavalry to Washington, D. C.

Long, Charles J., dental surgeon, arrived February 17 at Fort Assinniboine, Mont., for temporary duty.

Wing, Franklin F., dental surgeon, granted leave of absence for fourteen days.

Lauderdale, Clarence E., dental surgeon, ordered from Fort Ringgold, Texas, to Fort Bliss, Texas, for temporary duty.

Coffey, Albion McD., contract surgeon, ordered from Fort Worden, Wash., to Fort Lawton, Wash., for temporary duty.

Kellogg, Preston S., contract surgeon, returned February 26 to his proper station, Fort Robinson, Neb., from temporary duty at Fort Crook, Neb.

Thorp, Charles W., contract surgeon, ordered from Fort Ethan Allen, Vt., to Fort Adams, R. I., for temporary duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 3, 1905:

Taylor, E. C., asst.-surgeon, detached from the *Bancroft* and ordered to the *Colorado*.

Huntington, W. H., pharmacist, retired, ordered to the Naval Training Station, Newport, R. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 1, 1905:

Glennan, A. H., asst.-surgeon general, granted leave of absence for fifteen days from March 6.

Stoner, G. W., surgeon, to proceed to Boston, Mass., for special temporary duty.

Banks, C. E., surgeon, relieved from duty at Chicago and directed to proceed to Key West, Fla., and assume command of the service, relieving P. A. Surgeon C. H. Gardner.

Gardner, C. H., P. A. surgeon, on being relieved from duty at Key West, Fla., by Surgeon C. E. Banks, to proceed to Galveston, Texas, and assume command of the service.

Heiser, V. G., P. A. surgeon, to report to the Governor General of the Philippine Islands as Health Commissioner in addition to duties as chief quarantine officer of the Islands.

Ramus, Carl, P. A. surgeon, detailed as inspector of unserviceable property at Honolulu, T. H.

Ebersole, R. E., asst.-surgeon, granted leave of absence for three days on account of sickness.

Stevenson, J. W., A. A. surgeon, granted leave of absence for seven days from Feb. 27, 1905, under provisions of Paragraph 210 of the Regulations.

Ashenbach, John, pharmacist, granted leave of absence for four days from Feb. 17, 1905, under provisions of Paragraph 210 of the Regulations.

Thurston, E. J., pharmacist, granted leave of absence for ten days from March 10.

CASUALTY.

A. A. Surgeon Esteban Lopez died at Fajardo, P. R., Feb. 4, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the period from Feb. 26 to March 3, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Feb. 18-25, 2 cases.
Illinois: Feb. 18-25, Chicago, 18 cases, 2 deaths; Danville, 4 cases; Galesburg, 1 case.
Kentucky: Louisville, Feb. 16-23, 3 cases.
Louisiana: New Orleans, Feb. 18-25, 14 cases, 1 death, 5 cases imported.
Massachusetts: Boston, Feb. 18-25, 1 case.
Michigan: At 62 places, Feb. 4-11, present.
Missouri: St. Louis, Feb. 18-25, 38 cases, 5 deaths.
Nebraska: Omaha, Feb. 18-25, 1 case.
New York: New York City, Feb. 18-25, 5 cases, 1 death.
Pennsylvania: Johnstown, Feb. 18-25, 1 case.
South Carolina: Greenville, Feb. 11-25, 5 cases, 2 deaths.
Tennessee: Feb. 18-25, Memphis, 20 cases, 2 deaths; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Jan. 1-29, 102 cases, 25 deaths.

Brazil: Nictheroy, Dec. 1-31, 44 deaths; Para, Jan. 28-Feb. 11, 4 deaths; Pernambuco, Jan. 1-15, 131 deaths.
China: Shanghai, Jan. 7-21, 21 cases, foreigners, 98 deaths, natives.
Ecuador: Feb. 9, Colta, present; Columbo, present; Guamote, present; Guayaquil, Jan. 31-Feb. 7, 1 death.
France, Paris, Feb. 4-11, 23 cases, 1 death.
Great Britain: Hull, Jan. 28-Feb. 4, 7 cases, 1 death; Feb. 4-11, Leeds, 12 cases; London, 1 case; Newcastle-on-Tyne, 6 cases; South Shields, 2 cases; West Hartlepool, 3 cases.
India: Bombay, Jan. 24-31, 109 deaths; Calcutta, Jan. 21-28, 2 deaths; Karachi, Jan. 22-29, 1 case, 1 death; Madras, Jan. 21-27, 1 death.
Italy: Catania, Jan. 26-Feb. 9, 5 deaths; Palermo, Jan. 28-Feb. 11, 43 cases, 4 deaths.
Norway: Christiania, Jan. 28-Feb. 11, 6 cases, 1 death.
Russia: Moscow, Jan. 28-Feb. 4, 5 cases, 1 death; Odessa, Feb. 4-11, 2 cases, 1 death.
Straits Settlements: Singapore, Jan. 7-14, 1 death.
Switzerland: Geneva, Jan. 21-Feb. 4, 2 cases.
Turkey: Constantinople, Jan. 30-Feb. 6, 6 deaths.
West Indies: Grenada, Jan. 26-Feb. 9, 8 cases.

YELLOW FEVER.

Brazil: Manaos, Jan. 25-Feb. 8, 3 cases, 2 deaths; Para, Jan. 27-Feb. 11, 2 deaths.
Ecuador: Guayaquil, Jan. 31-Feb. 7, 2 deaths.
Mexico: Coatzacoalcos, Feb. 12-18, 1 case, 1 death.
Panama: Panama, Jan. 1-Feb. 14, 27 cases, 7 deaths.

CHOLERA.

India: Calcutta, Jan. 21-28, 103 deaths.
Russia: Jan. 16-23, 6 cases, 4 deaths.
Turkey in Asia: Van, Jan. 9-24, 59 cases, 20 deaths; to Jan. 24, 1,200 cases, 500 deaths estimated.

PLAGUE.

Africa (Portugese): Lorenco Marquez, Jan. 17, 5 cases (suspect); Port Florence (British), Jan. 5-12, 9 cases, 8 deaths.
Arabia: Aden, Jan. 21-28, 154 cases, 128 deaths; week ended Jan. 21, 113 cases corrected by Aden plague authority.
Argentina: Buenos Ayres, Jan. 28, 9 cases (suspect).
Brazil: Nictheroy, Dec. 1-31, 1 death; Para, Jan. 28-Feb. 11, 2 deaths.
Egypt: Suez, Jan. 21-28, 3 cases, 1 death.
India: General, Jan. 14-21, 33,083 cases, 28,104 deaths; Bombay, Jan. 24-31, 408 deaths; Calcutta, Jan. 21-28, 58 deaths; Karachi, Jan. 22-29, 60 cases, 53 deaths.
Siam: Bangkok, Dec. 22-Jan. 3, 2 cases, 2 deaths.
Straits Settlements: Singapore, Dec. 31-Jan. 14, 3 deaths.

Isthmian Sanitation.

THE PANAMA CANAL MISMANAGEMENT.

Report to the Government by Dr. Charles A. L. Reed, Showing How the Commission Makes Efficient Sanitation Impossible.

Dr. Charles A. L. Reed, immediately on his return from Panama, March 1, filed the following report with the Secretary of War:

WASHINGTON, D. C., March 2, 1905.

Honorable William H. Taft, Secretary of War.

DEAR SIR:—Pursuant to your request I have the honor herewith to submit the report of my observations relative to the status of sanitation and of the sanitary department in the canal zone and in the cities of Colon and Panama.

I arrived at Colon on the 7th of February and sailed from that city on the 22d of the same month, thus affording me fifteen days in which to study, with more or less care, the conditions of organization and the details of administration as they relate to the public health interest.

Sanitary Staff Efficient.

I was given every facility in this regard by General Davis, the Governor of the Zone; by Mr. Wallace, the Chief Engineer; by Colonel Gorgas, the Chief Sanitary Officer; as well as by his associates, Major La Garde, Lieutenant Lyster, and Dr. Carter. As a result of this investigation I became impressed with the efficiency and the zeal of the sanitary staff; with the fact that very much has been accomplished in the way of sanitation under exceedingly adverse circumstances; that much remains to be done which can not be done unless better facilities are afforded; and that very much more ought to be done and would have been done if the facilities had been properly furnished.

I was forced to this conclusion, not only by what I saw and heard while on the Isthmus, but by a careful study of the published proceedings of the Isthmian Canal Commission, by a study of the laws of the canal zone formulated by that commission, and by a careful consideration of their first annual report, submitted under date of Dec. 1, 1904.

Importance of Sanitation Recognized by Both Governments.

The situation became all the more impressive from the fact that the question of sanitation on the Isthmus was considered of so much importance that it was made a subject of special provision in the canal convention entered into between the Republic of Panama and the United States. There is in fact no stipulated cession from Panama to the United States that does not carry with it the expressed right of sanitation. This is true not only of the zone proper, but it is likewise agreed that:

> The cities of Panama and Colon, which lie outside of the canal zone, shall comply in perpetuity with the sanitary ordinances, whether of a preventive or curative character prescribed by the United States, and in case the government of Panama is unable or fails in its duty to enforce this compliance by the cities of Panama and Colon with the sanitary ordinances of the United States the Republic of Panama grants to the United States the right and authority to enforce the same.

The above provision of treaty entered into by the two countries was the logical result of the disastrous experiences: first, of the Panama Railroad under the three companies that were successively identified with its construction, and, later, by the two French companies that had attempted to dig the canal. That sanitation was indeed the fundamental problem to be solved before even the engineering question could be subjected to successful solution had been reduced to a demonstration.

This view of the case was manifestly accepted by the President, who, on the formal installation of the Isthmian Canal Commission, addressed that body in part as follows:

> There is one matter to which I wish to ask your special attention—the question of sanitation and hygiene. You will take measures to secure the best medical experts for this purpose whom you can obtain, and you will, of course, make the contractors submit as implicitly as your own employes to all the rules and regulations of the medical department under you. *I presume you will find it best to have one head for this medical department,* but that I shall leave to your own judgment.

The italics by the writer indicate the views of the President, subsequently expressed to the writer, that by having Colonel Gorgas placed in full charge of the sanitary work instead of on the commission itself, as had been urged by the medical profession of the United States, he would be untrammeled with extraneous duties and would consequently have better opportunity to make his work effective than if he were actually a member of the executive board.

The Organization of the Health Department.

At the meeting of the commission, held at Ancon, August 28, 1904, Mr. Grunsky, as the committee on a proposed health department, presented a report which began by stating that "after repeated conferences with" Colonel Gorgas and with practically the entire sanitary staff, "it has been agreed," but which should have stated that "in certain important particulars Mr. Grunsky has agreed with himself"; for, as a matter of fact, much of the report was formulated over the respectful protest of the medical men who were invited to the conference. By this report the commission, more especially Mr. Grunsky, provided for the creation of a board of health with power to formulate regulations which would become effective only after approval by the commission, or, in cases of emergency, only on the approval of the governor of the canal zone. Thus the chief sanitary officer who had been sent to the zone to clear it up and to make it ready for the actual work of the engineers had his discretion limited to the enforcement of regulations that had first been adopted by the commission or by a board of health; in which latter event it had to be sent generally to Washington to be endorsed by the commission, or, in cases of emergency, it could be approved or rejected by the governor of the zone.

The Extraordinary Subordination of the Sanitation Staff.

It thus came about that the chief sanitary officer, whom and whose department the medical profession had asked to be made largely autonomous; whom and which the President himself had obviously intended should be largely autonomous, was, by the action of the commission, more especially Mr. Grunsky, subordinated to the governor of the zone; to the chief disbursing officer; to the chief of the bureau of material and supplies; to Mr. Grunsky; to the commission; to the Secretary of War; to the President; subordinated in fact in the seventh

degree from the original source of authority. And this is the state of affairs on the Isthmus to-day. One can not but be impressed with the anomalous condition by which a man of Colonel Gorgas' distinction, the foremost authority in the world in solving the peculiar problems that are connected with sanitation on the Isthmus, being made subordinate of a whole series of other subordinates who are confessedly ignorant of the very questions with which he is most familiar.

How the Machine Does Not Work.

It is interesting to inquire into the working of this wonderful mechanism. Thus, if Major La Garde, superintendent of Ancon Hospital, makes a requisition for supplies, he must make it in due form, take it for approval to the chief sanitary officer, then to the governor of the zone, then to the chief disbursing officer; whence it goes to the commission at Washington; then to Mr. Grunsky as committeeman; then back to the commission; then, if allowed, bids are advertised for; awards are made; the requisition is filled under the supervision of a purchasing agent notoriously ignorant of the character and quality of medical and surgical supplies; the material is shipped to the Isthmus, consigned to the chief of the bureau of materials and supplies, who notifies the disbursing officer, who notifies Colonel Gorgas, who in turn notifies Major La Garde, who applies to the quartermaster—the boss of a corral—for transportation, and so much of the stuff as in the judgment of, first, the governor, next the chief disbursing officer, next the commission, next, and more particularly, Mr. Grunsky, ought to be allowed to the superintendent of Ancon Hospital finally arrives or does not arrive at its destination. This is no fanciful picture; it is exemplified in practically every ordinary requisition that goes forward. And what is true of Ancon Hospital is true at Colon, at Culebra, at Miraflores and at all points along the line that require supplies of this description. It is true that in the presence of emergency it is not necessary to send clear to Washington, and certain purchases are permitted and authorized in the open market at Panama, but always, of course, at greatly increased prices.

An instance in point occurred a few days before my departure from Ancon: A woman in the insane department was delivered of a child; her condition was such that she could not nurse her offspring; the nurse applied to Major La Garde for a rubber nipple and a nursing bottle; he had none—the requisition of last September had not yet been filled; he made out a requisition, took it to Colonel Gorgas for indorsement, then to Mr. Tobey, chief of the bureau of materials and supplies for another indorsement, then to a clerk to have it copied and engrossed; then a messenger was permitted to go to a drug store and buy a nursing bottle and a nipple, which finally reached the infant two days after the necessity for their use had arisen. The articles ought to have cost not more than 30 cents, but counting the money value of the time of the nurse, of Major La Garde, of his clerical help, of Colonel Gorgas, of Mr. Tobey, of Mr. Tobey's clerks, of the messenger, the cost to the government of the United States was in the neighborhood of $6.75—all due to the penny-wise-and-pound-foolish policy of the commission, more especially of Mr. Grunsky.

Other Examples of the Littleness of the Commission.

This commission, one would naturally suppose, was appointed to solve great general problems and to lay down broad general principles relating to the gigantic work to be done, leaving the execution of details to better qualified persons employed for the purpose. Yet we find in the published minutes of that body that after traveling 2,000 miles it sat in solemn session at Ancon, at an expense for salaries and incidentals of $500 a day to the people of the United States, consuming much of its time with trivialities which it has placed on record, some of which are as follows:

"The request of Dr. La Garde, dated August 8, for a waiter for the Nurses' Home was" not granted, but was "laid over for inquiry."

"The recommendation of Dr. La Garde, dated August 9, that pay of the assistant baker at Ancon Hospital be increased from $35 silver to $45 silver was" not granted, but likewise "taken under advisement."

"The request of Dr. J. W. Ross, director of hospitals, dated Aug. 10, 1904, for authority to keep a pony in the stable of the commission at Ancon was" neither granted nor refused, but "taken under advisement."

"Under date of Aug. 1, 1904, the chief sanitary inspector requested authority to employ sixteen carpenters. The employment of eight, with authority to increase the number as required to twelve was authorized."

"The superintendent of Ancon Hospital, under application dated Aug. 1, 1904, and a supplemental letter from the director of hospitals dated Aug. 15, 1904, was authorized to employ twelve additional nurses as required."

"The superintendent of Ancon Hospital, under his applications dated July 20, 1904, and Aug. 8, 1904, was authorized to hire an additional waiter and a waitress to be assigned to duty as necessary."

"The request of Dr. William Fawcett Smith, stationed at Gorgona, for a personal servant, was disallowed."

Numerous other instances could be cited from the published proceedings of the commission to show that it consumed its time in carefully scrutinizing minutiæ of administration that ought to have been entrusted successfully to the men employed for the purpose. Colonel Gorgas and Major La Garde are both officers of high grade and extensive experience and are gentlemen of recognized integrity and ought certainly to have been accorded the generous confidence by which they could dispose of such questions of detail at their own discretion. They ought, furthermore, to be entrusted with a contingency fund or emergency fund by which to make small purchases, but this was specifically disallowed to Major Gorgas, the intimation being conveyed to him by the commission, more especially by Mr. Grunsky, that the request was in the nature of an impertinence.

The Sanitary Department Denied the Right to Decide on the Suitability of Its Own Supplies.

The commission at Ancon last August adopted a resolution creating a department of the zone government to be known as the "material and supplies department," the chief of which is "charged with the receipt, inspection on the Isthmus, custody, care, shipment, transfer, issue and disposition of all supplies, material, equipage and floating equipment unissued and not in actual use." It is, however, specifically provided that:

> The governor of the Canal Zone, acting for the executive branch of the government of the zone, and the chief engineer, acting for the Department of Engineering and Construction, shall have authority to decide on the suitability of any and all supplies furnished, and their requisitions for such materials as are on the Isthmus shall be promptly filled without reference to a higher authority.

There is nothing said about the Sanitary Department, and as that which is not included is excluded, it follows that the right very justly accorded to the Engineering Department is denied to the Sanitary Department as such. It is obvious, of course, that the Sanitary Department, being made subordinate to "the executive branch of the government of the zone," can get supplies, but subject only to the judgment of the governor, who, by this resolution, is empowered to pass on the suitability of any or all supplies for the Medical Department or the Department of Public Health."

An example of the working of this rule was shown in the recent purchase of an *x*-ray outfit for the Ancon Hospital. The requisition went in several months ago and was pending before the commission, more especially Mr. Grunsky, when the expert who had been specially employed to do *x*-ray work in Ancon, happened in Washington and requested the privilege of selecting the Crookes tubes; the request was peremptorily refused; the expert urged that his knowledge would enable him to make better selections than would be probable by an unskilled purchasing agent, and went so far as to urge as an additional reason the distance to the Isthmus, the time involved in transportation, to say nothing of the expense involved, only, however, to be informed that if the tubes did not suit they could be returned. They came after a long delay, were found worthless and were returned; other ones have not yet been sent to replace them and, as a consequence, Ancon Hospital is to-day without *x*-ray service, while the salary of the expert goes on. In another instance objectives for a number of microscopes were carefully specified by the chief of the laboratory, who would naturally be presumed to know most about them, but the commission, more especially Mr. Grunsky,

assumed to possess superior knowledge of the subject and substituted others, with the result that when they arrived on the Isthmus they, too, were found to be worthless.

The foregoing are but two examples of what is constantly occurring. The matter becomes really very serious when it involves questions of medicines, and in this particular furnishes a strange inconsistency with the laws laid down by the commission for the government of everybody else but themselves. Thus, by the laws of the canal zone, a severe penalty is imposed on druggists and purveyors in general for substituting one medicine for another that may have been ordered, yet instance after instance is coming to the front in which the commission, either through Mr. Grunsky or through an unqualified purchasing agent, is foisting on the medical service remedies other than those specified in the requisitions. This, I believe, holds true in practically every requisition for medicine that has reached Ancon Hospital, and the same principle may probably account for the fact that the majority of all of the requisitions for medical supplies have been either ignored or suppressed by the commission at Washington.

The Commission's Petty Antagonisms to the Sanitary Department.

That the opinion just expressed, viz., that the commission, more especially Mr. Grunsky, visits on Colonel Gorgas and on the Sanitary Department not only unnecessary and unreasonable restraints and confronts it with petty, almost despicable, antagonisms, is shown by reference to a series of hitherto unrelated facts.

Thus, Colonel Gorgas asked the commission to invest him with individual authority in carrying out views which had matured not only from his long professional study, but as a result of his highly successful experience in Cuba; the reply was the establishment of a board of health, followed by his subordination successively under the immediate control of practically every feature of government in the zone. He asked for a department of hospitals with an officer at its head; this was temporarily granted, but the office was soon abolished and was forced into Colonel Gorgas' own office without any compensatory addition to his executive force. Colonel Gorgas sent in numerous requisitions, many of which, as I shall have occasion to allude more in detail, were disregarded. He followed them with letters of respectful protest about the slowness of receiving supplies; the reply was the statement made to him verbally and under humiliating surroundings that he was disrespectful to his superior officers.

Colonel Gorgas submitted an estimate for the establishment of emergency hospitals along the line; this estimate was reduced by the commission. Colonel Gorgas wanted to begin drainage and other important mosquito work simultaneously at other points along the line, and for this purpose asked for twenty inspectors; the commission, more especially Mr. Grunsky, took the matter under serious advisement and reduced the estimate to eight inspectors. Colonel Gorgas asked for screens for all the buildings in the zone; the commission, more especially Mr. Grunsky, concluded that this was a totally unwarranted expense and eliminated the proposition. Colonel Gorgas then urged that mosquito screening be furnished for all of the buildings at the Ancon Hospital, the screens to be placed around the galleries; the commission, more especially Mr. Grunsky, concluded, however, that only one-half the gallery space ought to be enclosed, that the windows might possibly be screened with advantage, and that even in that part of the galleries where screening was applicable it might be well to board up the part of them below the railing, utterly unmindful that such a proposition would carry about ten times the expense of screening.

Colonel Gorgas asked for a chief clerk at $1,800, with the object of getting a man who had had experience with him in Cuba; he was allowed only $1,500, for which he could get only an inexperienced man. He asked for $5,000 for a health officer for Panama, a most important office, with the hope that he might fill it with a man of Cuban experience; the commission, more especially Mr. Grunsky, allowed 3,000, with which it was possible to secure only the services of a previously inexperienced man. Colonel Gorgas asked for 100 female nurses, duly qualified for service at the Ancon and Colon hospitals, on a basis of a normal bed capacity of those two institutions; the commission, more especially Mr. Grunsky, replied by furnishing him forty female nurses, but by authorizing the establishment of a training school by which, as in the instance of the interneships, it was hoped to get the services of inexperienced nurses for comparatively little money. Colonel Gorgas asked for $50 per month for trained men and orderlies in the hospitals; it would be impossible to get them for less money. The commission, more especially Mr. Grunsky, replied by cutting the allowance down to $25 per month for the trained ward men and $15 per month for orderlies, with the result that the medical staff is being subjected to serious confusion by the inefficiency of the inexperienced natives, who alone will accept these small wages. Colonel Gorgas recommended to the commission the prompt sanitary control of both Colon and Panama, to which I shall have subsequent occasion to allude; the commission, more especially Mr. Grunsky, found a convenient pretext in totally imaginary diplomatic complications to defer this step until forced to do it by the present development of yellow fever. Colonel Gorgas recommended a system of movable latrines to be used in the larger labor camps as a preventive of ankylostomiasis or hook-worm, with which the natives are already infected and which is one of the most pestilential diseases of the tropics; the commission did not consider this, only one member of which taking any notice of the suggestion and that to the extent of expressing his disapproval, coupling with his disapproval the suggestion that in certain tropical countries with which he is familiar hogs and buzzards have been successfully relied on to dispose of night soil.

Colonel Gorgas asked in his original scheme that the institution at Taboga be set aside for the accommodation of convalescents from the hospitals at Ancon and at other points in the zone, and asked for the privilege to nominate a doctor and head nurse for the place and to equip the institution; the commission, more especially Mr. Grunsky, replied that while they would repair the institution they would not put it in commission. (As a matter of fact some repairs have been made, the institution is now in the charge of a care-taker, while the hospital at Ancon is overcrowded with convalescents and with the personnel of the institution, thus materially reducing the real hospital capacity of the institution.) Colonel Gorgas asked in November for a personnel for the hospital at Meriflores, which, in accordance with the understanding had with Secretary Taft during his stay on the Isthmus, was set aside for the accommodation of the insane and the lepers of the republic; the commission, more especially Mr. Grunsky, authorized that a physician and an assistant, with a nurse, be transferred to the institution, but furnished no person to take the places from which they had been detached. Colonel Gorgas asked that he be given some opportunity to exercise his judgment as to the qualifications of the personnel, and as to the quality of supplies to be furnished his department; the commission, more especially Mr. Grunsky, declined to give him this important supervision over the selection of his personnel while the disbursing officer declined to give him the opportunity to inspect supplies before they were actually issued to the Sanitary Department. Colonel Gorgas, at the first outbreak of yellow fever in July of last year, asked for a general appropriation to be disbursed at his discretion with which to meet the emergency; the commission, more especially Mr. Grunsky, peremptorily declined to place any sum of money at his disposal and forced him to rely exclusively on the established machinery for securing necessary supplies. Colonel Gorgas then asked the privilege of ordering directly from the medical purveyor in New York to the amount specifically of $30,000 silver, for the first month of the yellow fever epidemic, and $15,000 for each following month, so long as it might be necessary; the commission, more especially Mr. Grunsky, again refused, but directed that the Bureau of Material and Supplies be ordered to purchase the necessary arti-

cles, which it assumed to do, but, notwithstanding the lapse of eight months, these supplies are not yet on the Isthmus.

Doors and windows for the hospital at Culebra were asked for in January, but are not yet in place. Flooring for the porch of the hospital at Gorgona, likewise asked for in January, has not yet been furnished, and patients have to be carried up and down stairs and through the open to get them from one ward to another. Colonel Gorgas asked for screens for the hospitals along the line and sent in requisitions for the same in July; the commission, more especially Mr. Grunsky, concluded that they were not necessary. Colonel Gorgas asked that a gang of men for the purpose of making repairs be placed at his disposal, and Chief Engineer Wallace set aside a number of men for this purpose; the commission, more especially Mr. Grunsky, however, stopped this convenient arrangement and directed that hereafter all such things must be done only after arrangements had been previously submitted. Colonel Gorgas asked for pyrethrum, sulphur and other materials for disinfection work, the request having been sent in last September; the commission, more especially Mr. Grunsky, concluded the estimate was large, cut it down to one-fourth, and then sent the material only in small lots from time to time. Colonel Gorgas requested that a certain house be constructed at the quarantine station, seriously needed for the benefit of the service; the commission, more especially Mr. Grunsky, ignored the request, and the service is yet embarrassed for the want of necessary facilities. Colonel Gorgas asked for the equipment for the research laboratory, and for a small personnel at an aggregate expense of $15,000, but an annual operating expense of about $140, the small operating expense for salaries being attributable to the fact that men already connected with Ancon could be detailed for the service; the commission, more especially Mr. Grunsky, supported in this instance by Governor Davis, rendered an adverse decision on this application. Colonel Gorgas asked that an ambulance be kept on the ground at Ancon for prompt service; the commission, more especially Mr. Grunsky, replied that the ambulance must be kept in the corral outside of the hospital grounds, as a result of which unnecessary time of the commission was consumed in alleged deliberation over this question, and as a further result it is impossible to get the ambulance on ready call at times of emergency.

These are but a few of the many examples that could be cited by which the commission, more especially Mr. Grunsky, thwarts the honest endeavor of Colonel Gorgas to put the canal zone in proper sanitary condition. There are, however, a number of other questions to which I must hasten to invite attention.

Cheap Physicians for the Isthmus.

The commission in every effort that it has made to secure service of any character on the Isthmus has tacitly acknowledged the unhealthfulness of the region by holding out as an inducement the fact that employes will be furnished free medical treatment, including the service of the hospitals. The fact that medical men in the zone would have much executive work to do, that they would have to deal with large bodies of workmen, and that their duties would require the exercise of trained judgment in a very broad sense, prompted Colonel Gorgas to advise that only relatively mature men be brought to the Isthmus in the capacity of physicians. He advised, furthermore, that the minimum salary to be paid to medical men in the zone be the same as the minimum salary paid in the Army for contract surgeons, namely, $1,800. This plan did not, however, commend itself to the commission, more especially to Mr. Grunsky, who, in the interest of alleged economy, conceived the brilliant scheme of establishing interneships in the hospital of the zone, the incumbents to receive $50 per month, the same salary that is paid to nurses. The verbal justification of the plan offered by Mr. Grunsky, and subsequently adopted by the commission, is that young men will thereby receive a preliminary training in tropical diseases, which is to be accepted by them as part pay for their services, after which, that is, after a year, if they so desire, they will be at liberty to return to the states. But Mr. Grunsky takes pains not to say that the incidental service to be rendered by these internes is to represent the bone and sinew of the medical service on the Isthmus, and likwise fails to make clear how he expects to establish a stable medical service if, after the expiration of a year, his internes are at liberty to return to the North, which they would doubtless do in the absence of inducements to remain on the Isthmus. And what if they should desire to return before the end of a year?

This question brings us face to face with Mr. Grunsky's trap to get cheap medical service for the zone. Once on the Isthmus, these young men, finding themselves on the salaried basis of nurses with incidental expenses that can not be evaded and that will eat up the last penny of their beggarly stipend, desiring to leave their humiliating positions, will find the door closed against egress. It is even to-day easy for an employe to get to the Isthmus, but it is already exceedingly difficult for him to get away from it. And what is true to-day will be more emphatically true in the future, a fact that the commission, more especially Mr. Grunsky, takes great care to leave in the background.

But the commission, more especially Mr. Grunsky, holds up the prospect of promotion. This in any event, under Mr. Grunsky's rules, can not be granted under one year, and then, if granted, which it may not be, the salary is placed at $125 per month, or $300 per year less than the minimum salary paid to contract surgeons in the Army. What is there about the medical service in the canal zone that should render it less entitled to compensation than the same medical service when rendered in the Army? What is there about the personnel of the zone government, about the employes, about the laborers, that they should be furnished with a cheaper grade of medical service than the officers, soldiers and enlisted men of the Army? Why should not the commission, more especially Mr. Grunsky, follow the example of both the Army and the Navy and accept men who have already served interneships in the hospitals of the states, give them decent salaries, and then, after sending them to the Isthmus, give them additional opportunities for the preliminary study of tropical diseases at the hospitals at Ancon and Colon? And why should this not be done at once, that a competent medical staff may be at the Isthmus when the large bodies of workmen shall have arrived? This could not but be gratifying to the chief sanitary officer, whose wishes, however, it would seem need only to be expressed to have them vetoed by the commission, more especially by Mr. Grunsky, in what seems to be a fatuous desire, regardless of consequences, to give every detail the impress of his overpowering personality.

The United States in Cheap Competition with the Medical Profession of Panama.

The course of the commission in its endeavor to establish a cheap medical service, naturally enough made up of cheap doctors, which they hope in the future to send to the zone, is not limited in its influence and in its pernicious results to the zone itself. To make this clear, however, it is important to remember that under the truly remarkable plan of organization of the sanitary department devised by Mr. Grunsky, adopted by the commission and duly engrossed in the laws of the canal zone, it is provided that all persons not employes of the commission, but who may be "sick in the canal zone and in Colon and Panama, should be admitted to the hospitals, but such persons shall pay according to their means." This practically opens the hospitals of the zone as private pay hospitals to all the world, for it would be difficult for any sick persons to come from anywhere and to enter the zone at either end without being sick in Colon and Panama. As a matter of fact, it happens with increased frequency that patients, not only from Panama, but from various points along the coast and in the interior, are received and treated in the hospitals at Ancon. I have no knowledge touching this point at Colon, but can see no reason why it should not be equally true.

The thing, however, would not seem so bad if the provision

that these patients should pay according to their means had been permitted to stand without qualification. Unfortunately, however, the commission, more especially Mr. Grunsky, with his fondness for prescribing details, proceeded to lay down a per diem charge for room and for nursing at Ancon, the rates being about the same as those charged for similar service in the better hospitals of the United States. He, however, did not stop at this point, but made it a part of the laws of the canal zone that "surgical operations shall be charged for according to their importance and the financial ability of the patient to pay, but no charge in excess of $50 shall be made without the approval of the director of hospitals." As the office of director of hospitals has been abolished, the maximum rate to be charged for surgical operations, without reference to their gravity, stands at $50. It is furthermore provided by Mr. Grunsky and made part of the laws of the canal zone, that physicians connected with the hospitals must visit the residences of persons "entitled to treatment at the hospital, at a fixed daily rate of pay," which visits "shall be charged for at the rate of one-half dollar ($0.50) for each visit, but no such charge is to be made for emergency calls nor in the cases of persons entitled to free hospital treatment until after the person has been ordered into the hospital." These rates which, in the instance of surgical operations, vary from one-fourth to one-tenth of the average charge in the United States and in the Republic of Panama, and in the instance of visits, less than one-fourth of the ordinary rates charged in either of the two countries, can not but be disgusting to the medical profession in the states who are not in the least influenced by the belittling competition.

It is important, however, to bear in mind that the physicians at Ancon are in no sense the beneficiaries of the extra revenue that is thus derived by extra service that is thus imposed on them. On the contrary, it is provided by the commission, more especially by Mr. Grunsky, and duly engrossed in the laws of the canal zone that:

> The money realized in the hospitals from charges for board, medical attendance, surgical operations and the like, and from visits at residences as set forth, shall be considered public funds and turned over to the government of the canal zone.

It follows, therefore, that it is not the medical men sent to the canal zone, but the United States, our own great nation itself, that is engaged in this belittling business, which must be recognized as a personal insult to any decent practitioner of medicine in any country of the world.

In the Republic of Panama it amounts to more than an insult; it is an actual damage. This was brought to my attention by one of the most distinguished members of the medical profession of that country, who first made me aware of the situation, and who did so in terms of bitter complaint. He explained that under the operation of this order of things, and in spite of the existence of other hospitals in Panama, private patients, attracted by the cheap rates and the prestige of the medical staff at Ancon, are flocking to that institution to the present serious embarrassment and prospective ruin of medical practitioners.

I took the liberty to mention this matter in the course of a personal interview with President Amador, himself the most distinguished medical practitioner of the republic. As he is a friend of long standing, I had no hesitancy in broaching the subject and no difficulty in securing from him a very frank expression of fact that the situation had become so serious that he had been waited on by his colleagues of the medical profession, his constituents and fellow-citizens, by whom he had been requested to make formal representations on the subject to the American minister, but that he had desisted out of his great desire to avoid even the semblance of friction with the United States, and in the belief that a knowledge of so flagrant an injustice would sooner or later reach executive circles in Washington and would be corrected.

But a commission that is capable of thus busying itself with petty but, in their hands, annoying and obstructive details, would naturally enough be expected to forget matters of real importance. One can not, however, even at the hazard of seeming impertinent, enquire: "Why is there yellow fever in Panama?"

Why is there Yellow Fever in Panama?

Yellow fever is demonstrably a preventable disease, and as a consequence all deaths resulting from that disease must at once raise the question of responsibility. Panama has long and justly been recognized as a seat of yellow-fever infection, just as was Havana before the brilliant sanitary achievements of Colonel Gorgas in that city—achievements which resulted in his call to the Isthmus. The real campaign against the disease in Havana, more particularly against the disease-bearing mosquitoes, lasted from January to September, 1901. As Panama is but a village in comparison with the Cuban metropolis, it was naturally expected that similarly satisfactory results would be realized there in the same if not less time. But yellow fever is still endemic in Panama. Why is this true?

The dangers of the situation were thoroughly appreciated by Colonel Gorgas, even before he went to the Isthmus, and he laid before the commission a plan of campaign which embraced several distinct features, namely:

1. The installation of a sewer system in the cities of Colon and Panama.
2. The installation of water supply in those cities.
3. The cleaning of the streets including the disposal of garbage and night soil.
4. General sanitation of houses including their fumigation and the drainage of neighboring pools, the abolition of water barrels and cisterns and other places for the propagation of the yellow fever mosquito.
5. The prompt isolation of all cases of yellow fever.

These various steps bore such a logical relation to each other that one would become practically inoperative without the other. Thus, without drainage, a water supply would only augment the evil; without both it would be impossible to abolish the cisterns and water barrels that are breeding places of the yellow-fever mosquitoes; without abolishing the breeding places of these mosquitoes, it would be useless to attempt the formation of more than demonstrably infected houses.

This view was apparently accepted by the commission, even including Mr. Grunsky, before the first visit of that body to the Isthmus, and it was likewise the view still held by Colonel Gorgas and by the entire personnel of the sanitary department, as well as by Mr. Wallace, the head of the engineering department, when, on June 28, the sanitary government was established in the canal zone. Panama was then apparently free from yellow fever, but Colonel Gorgas, with his Cuban experience, and knowing the danger that was lurking in the immediate future, set about promoting these complete measures of prevention, while Mr. Wallace addressed himself to plans and specifications for water-works and sewer system for Panama. The plans of both of these men went promptly before the commission, but it was not until that body had returned to the Isthmus, in August following, that they were given serious consideration; meanwhile, the danger of which Colonel Gorgas had forewarned them had developed; for, on July 12, Charles Cunningham was stricken with yellow fever, from which he died two days later. Fourteen days after this death another case developed, which, however, went on to recovery. When the commission arrived at Ancon on the occasion of its second visit, that is, on August 3, Colonel Gorgas again urged the prompt assumption of sanitary control over Colon and Panama, and cited the case still in the hospital, and the fatal one that had preceded it, as danger signals of sufficient gravity to justify action. But the commission, more especially Mr. Grunsky, had not yet determined the degree of humiliating subordination to which the sanitary department was to be subjected, and, under pretext of perfecting a plan of organization, deferred action for another three and one-half weeks—valuable weeks—that is, until August 28. On this date the commission, on the report of Mr. Grunsky, adopted Mr. Grunsky's plan of organization, by which, as I have already shown, Colonel Gorgas was subordinated to the seventh degree below the original source of authority. Even then, with the cases of yellow fever staring them in the face, the commission, at the instance of Mr. Grunsky, directed Colonel

Gorgas, acting through Governor Davis, to refrain from any attempt to secure sanitary control over the cities of Colon and Panama, citing certain more or less diplomatic frivolities as a pretext for deferred action. It was only after four or five months had elapsed, only after the progressive development of yellow fever had reached the sensational point, and only after the personnel in the canal zone had become thoroughly alarmed over the situation, that Colonel Gorgas was permitted by those in authority over him to assume the sanitary control of the two cities, one of which, Panama, having by this time become very generally infected.

But even then his hands were tied, sometimes, and in important particulars, by the arbitrary exercise of superimposed authority, but all the time, and in still more important particulars, by the fact that the water supply and the sewage system were not installed. Mr. Wallace had drawn the plans and specifications in July previous, and had taken care to specify only such pipe as manufacturers keep in stock, and that could therefore be procured without a moment's delay. But the commission, more especially Mr. Grunsky, in total disregard of the emergency that was present, saw fit to indulge in some views about pipe, and as Mr. Grunsky is a civil engineer and needed to impress the fact on somebody, he summoned Mr. Wallace, confessedly one of the ablest of engineers but now his subordinate, before the commission to explain why he had specified both eastern and western standards of pipes. The explanation given by Mr. Wallace that either one or both of these standards would answer the purpose, and that it had been simply his desire to purchase the pipe promptly, if necessary in small lots, and to get the pipe promptly on the Isthmus, seemed to make no appeal to either the commission or Mr. Grunsky; and pipe of the western pattern alone was ordered. The delay in the consideration of this particular point consumed another precious two weeks, after which Mr. Wallace was authorized to proceed with the work. This he undertook with his characteristic energy, and allowing for all reasonable delay in procuring the pipe and in sending it to the Isthmus, promised the people of Panama that they should have water by December. He finished the work at the Rio Grande reservoir in a short time; the trenches for the pipe were dug, washed full of dirt and redug, but still there was no pipe. Mr. Wallace then cabled to Washington, urging that the pipe be sent, only, however, to receive a reprimand from Admiral Walker, chairman of the commission, admonishing him that cablegrams from the Isthmus were expensive. It is now nearly the first of March, and the schooner which brought the first consignment of pipe, not enough to complete the work at Panama, was discharging the cargo at Colon as I left. It is further understood that before the work can go on this same schooner must sail back to Mobile, await the arrival there of enough pipe to make a full cargo, then sail back to Colon and again unload—a proceeding that, at a conservative estimate, will consume at least from two to three months. And all this by a commission that controls a line of steamers plying weekly between New York and the Isthmus!

In the light of all these facts, in contrast with the brilliant results achieved by Colonel Gorgas in Havana, where he was given not only a free hand, but his own purchasing and distributing agents, the responsibility for the present existence of yellow fever on the Isthmus can be placed nowhere else than on the Isthmian Canal Commission, more especially on Mr. Grunsky.

The Campaign Against Malaria Thwarted by the Commission.

But sensational as is yellow fever, now apparently on the increase at the Isthmus, the fact remains that malaria is the more serious pest. The discovery that malaria is disseminated by the anopheles has, however, made it possible to minimize the disease by proper preventive methods. These embrace (*a*) drainage, (*b*) the isolation of malarial patients, (*c*) the prophylactic synchronism. That these three things might be done, and done before the onset of the dry season, Colonel Gorgas asked the commission last August to furnish men to dig ditches and drain pools about the houses of natives; he asked also for wire screening with which to isolate all patients afflicted with malaria, and quinin with which mildly to cinchonize laborers and others exposed to the malaria bearing mosquitoes. The commission, more especially Mr. Grunsky, however, thought that the number of ditchers asked for, something like twenty, was too many, and allowed only half those estimated, but as the dry season has arrived and is almost past, and as the small squad of ditchers is still digging, it would seem that the original estimate was justified by the necessities of the situation. The wire screening was likewise cut down from 2,500 yards to 500 yards, and even that has not yet arrived on the Isthmus. The use of quinin as a preventive of infection did not commend itself either to the great therapeutic skill or to the economic judgment of the commission, more especially of Mr. Grunsky, so the observation of medical men with previous experience on the Isthmus, the conclusions of authorities in tropical medicine, such as Munson and Giles, the investigations of the Italian authorities, and the unequivocal verdict of Koch, were pushed aside and quinin for this purpose was stricken from the list.

The result is that while much has been accomplished by drainage, and by the admission of small fish into the runnels made by the small force of workmen, and while much has been accomplished by the prophylactic use of quinin by the personnel and employes of the higher grades, and taken by them in spite of the action of the commission, the fact remains that in the absence of the wire screening ordered last August, each case of malaria becomes a focus for the further dissemination of the disease. This is shown even at the Ancon Hospital, where in the complete absence of wire screening for the malarial wards and the consequent impossibility of excluding the malarial-bearing mosquitoes, non-malarious patients are becoming malarious, while both nurses and attendants are being made frequent victims of the disease. Two members of the medical staff likewise were suffering from malarial infection during the time of my stay at Ancon. Yet in spite of these facts the Isthmian Canal Commission, in its report under date of Dec. 1, 1904, page 88, states that "all cases of employes sick with malaria are taken into the Colon and Ancon hospitals and so screened that mosquitoes can not reach them"—a statement that is an absolute and an unqualified falsehood.

Cheap Nursing Service.

This report might be indefinitely amplified, but time will not permit. I feel it important, however, to allude to the fact that the policy that the commission, more especially Mr. Grunsky, has adopted with reference to furnishing cheap medical service to those who risk their lives in the zone has been adopted for the purpose of furnishing nurses for service in the Sanitary Department. The effort has been made under the subterfuge of establishing a training school to be conducted at Ancon, to get nurses to go to the zone at about the same rate that is paid for pupil nurses in the training schools of the United States. The same conditions, practically, are imposed on the nurses with reference to time service that is imposed on the internes, with the difference, however, that the period of enforced detention on the Isthmus under contract is placed at three years instead of one. This is not a place to take untrained nurses under any pretext, for nothing but fully developed talent in the various departments of activity should be sent to the Isthmus.

Conclusion.

In view of the foregoing facts and disregarding equally serious facts relating to the Department of Engineering and Construction, facts which the really valuable services of such individual commissioners as Messrs. Parsons and Burr could not entirely neutralize, but on which I do not feel qualified or authorized to report, I beg leave to call attention to the further observations of the President when he inducted the commission into office, as follows:

> I believe that each one of you will serve not merely with entire fidelity, but with the utmost efficiency. If at any time I feel that any one of you is not rendering the best service which it is possible to procure, I shall feel called on to disregard alike my feelings, and forthwith to substitute for him on the commission some other man whom I deem capable of rendering better service.

In view of the facts which I have presented, in view of many more facts of similar purport which might be presented, in view of the President's manifest and expressed wishes and their complete disregard by the commission, but more particularly in view of the vital interests at stake, I have the honor not only to submit the suggestion, but really to urge that the time has arrived when the President ought to redeem his word and ask for the resignation of the commission.

I have the honor to be, very respectfully,

CHARLES A. L. REED,

Chairman of the Legislative Committee of the American Medical Association.

Medical Organization.

ORGANIZATION NOTES.

James Hall Bell, M.D.

SAN ANTONIO, TEXAS.

When the great organization plan of the American Medical Association is carried out, the profession will have the power as it already has the disposition and intelligence, ultimately to compel legislation in the right direction. Should this power be wisely exercised, as doubtless it will be, we shall have in operation a plan of general government exactly and impartially suited to the necessities of medical men in the various important external relations they virtually sustain to each other and to society. This means the eventual obliteration of interruptive state lines, and that every phase of medicine properly under statutory control will be made uniform in all the states and territories. This epitomization of our future model organization, so universally helpful in its provisions and utilitarian in its purposes, is not the idle creation of a dreamer; its realization is clearly within the bounds of reasonable hope and expectation, and within the reach and power of intelligent and organized effort.

In the furtherance of its plans for a more suitable dwelling place, so to speak, the profession has an imperative duty to perform. With unanimity of purpose, it must build on the solid foundation already laid, a superstructure which shall vindicate the wisdom, necessity and impersonal authority of a perfected organization. From the performance of this duty no one should shrink.

A perfected organization, however, is not the only means of grace; it does not carry with it the assurances of professional salvation. The increased facilities afforded men to do better work under the wiser provisions and uniformity of law, do not insure progress. When every right avenue is legally opened, and every wrong one legally closed, to the advancement of science, it will not of necessity utilize its powers for good in the world, and humanity may be no better off, when the old institutional stumbling blocks to medical progress are finally removed.

The development of a profession, like the development of a nation, depends on the character of its individual members, and not on the character of external relations or conditions. Climate does not make the state; the house does not make the home. Individual principles determine the established course of things in both instances. The long use and abuse of power will eventually overthrow disciplined authority, and create general confusion and anarchy in the greatest kingdom of the earth, and a man may gratify swinish appetites in the splendors of a palace, perfect in all its appointments. On the other hand, the austere assumption and rigid exercise of right principles will prevail over a frowning climate and august despotism, just as a soul of lofty genius, scorning trifles and the adventitious circumstance, will work out the great problems of human life and destiny in the squalor of a hovel.

These general observations apply with peculiar force and impressiveness to the science of medicine, which thrives or languishes, advances or retrogrades, under the dominion of individual faculties, sentiments and ideas. This fact comprehensively grasped makes it plainly evident that the splendor of scientific achievement is not chiefly a question of organization, however admirable that may be, but of personal loyalty to the intellectual and moral obligations imposed on the individual.

While, therefore, the structural changes in our new plan of government are being arranged with so few apparent hindrances, and our standards of intellectual culture are constantly raised and enforced to suit the increasing demands of scientific progress, would it not be wise and practicable to regard with deeper concern the moral aspects of professional life? Certainly no plan of government, or intellectual provision, which dismisses with negative suggestions the great moral issues involved, will ever directly eliminate quackery, prevent the questionable practices of the medical politician, or practically discourage the disgrace and bitterness of petty and compromising personalities. These are moral questions and must be dealt with on moral grounds. Our moral standards, like our educational standards, should be compulsory. The one is just as important as the other and as easily enforced. Our present attitude on this question may be expedient for the time, but it should not be accepted as the fixed policy of the American Medical Association.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(*Concluded from page 736.*)

I have the hope that in America certain primarily clinical chairs, controlling, say, 25 or 50 selected patients each, combined with experimental laboratories, may soon be established. There is room for a medical chair, a surgical chair and perhaps for an obstetrical chair of this type. Young men thoroughly trained in physics, chemistry, physiology and pathology, as well as in the clinical work proper, devoting all their time and energy to the work of the wards and the laboratories, supported by special assistants, ought to do much toward making applicable in clinical work many of the facts of the basal sciences which are at present sterile so far as practice is concerned. Such scientific clinical positions would, I believe, have a greater influence for good than similar chairs designated by a pathologic or physiologic name. For it is in clinical work—medical and surgical—that we now need most the fructifying impulse of the scientific spirit, the productive results of wisely-chosen, well-directed scientific investigation.

During the past four or five years I have given considerable thought as to the best mode of organization of such a scientific clinical institute should the funds therefor ever be made available. And it seems to me that in such an institute, though the director should be a clinical man with unusual special knowledge and skill in the fundamental medical sciences there would have to be the co-operating activity of a number of special scientists. I do not believe that any clinical man, no matter how well trained he is, can at the same time be physicist enough, chemist enough, physiologist and biologist enough, pathologist and bacteriologist enough, to oversee and direct the work which should be done on all sides of a given problem, with equal certainty; still less do I believe that a chemist or a pathologist can, in his spare hours, acquire that immense amount of clinical experience which the leader of such an institute should possess. A group of special workers in the same institute is necessary. But the clinician should know enough chemistry and pathology and the chemist and pathologist enough clinical medicine so that the representatives of these different departments of the institute could talk intelligently on and work together toward the solution of the problem in hand.

But it will be asked, "Is not the medical faculty of a modern university, taken as a whole, just such an institute as you have in mind?" A moment's thought will show that it is not. The departments of a university and their associated laboratories have their own work, first of instruction and second of original research dealing with the general scientific problems of the special sciences themselves. These

separate departments can not and dare not neglect these functions in order to work out the details of the practical applications of the facts of their sciences to clinical work. They have not appropriations large enough nor apparatus extensive enough to carry on experiments on the large scale necessary; but, far more important, the members of the staff would, by turning their attention toward the application of their sciences to practical medicine, have their time and energy diverted from their teaching and from their original work in the sciences which they represent. This would be a grave injustice to staff and students; the progress of medical science, as a whole, would be seriously endangered if the institute for a fundamental medical science were to emphasize to any considerable degree the direct practical applicability of its work rather than the methods and facts of the science itself. No; the future will see, I feel convinced, the erection and endowment of special scientific-clinical institutes, aided perhaps by the state, but supported mainly by private beneficence. Practical medicine is, in a way, a branch of technic and it will do well, in some ways at least, to follow the paths already shown to lead most quickly and purposefully to advance by certain branches of industrial technic. The great iron and steel industries, the sugar manufactories, etc., have their scientific laboratories manned by skilled physicists and chemists, directly connected with their practical works. It pays them financially to expend large sums of money in this way. In one notable instance in Germany a group of allied companies which manufacture arms, ammunition and explosives, have combined to build and maintain a scientific institute to apply the facts of physical and chemical science directly to their practical problems. The central institute for scientific-technical investigations founded by them at Neubabelsberg, near Berlin, is, according to a great chemical authority, a large, magnificently equipped and conducted laboratory, which consists of two departments, a physical-chemical and a mechanical; in this institute the latest results of science are utilized to solve technical questions as they arise.

It is some such similar organization that we need for the clinical branches of medicine. Men suited to lead such institutes, possessing the scientific clinical insight required, exist and could easily be named; it is the opportunity that is lacking. But this opportunity will not be lacking long in America; the medical profession sees the need and is urgently calling the attention of universities and philanthropists to it. Such scientific clinical institutes are sure to come. It will be interesting to see what wealthy man and what university has the honor to act first.

Leipzig.

Medical congresses are much the same in general external character the world over and the *Kongress für innere Medizin* held in Leipzig showed no marked deviation from the type. The meetings held in the *Aula* of the university were well attended. There were the usual addresses of welcome, the general and special sessions, the banquet and a concert in the *Gewandthaus*. In the Hotel Hauffe, the Hentschel and in neighboring *Gasthöfe* one saw everywhere the genial faces of physicians, glad to be freed temporarily from the grind of practice. Old friends met and chaffed one another, jolly little groups formed in the corridors and smoking rooms to discuss everything except medicine. The huge, rotund, red-faced *Alcoholiker* railed at his thin, pale and wrinkled friend, the abstainer. Three or four older men, silent, serious and important, transacted together the affairs of the managing committee. *Geheimraths* received gracefully the homage of the *Werdenden*. Ambitious, eager medical youth, as yet more or less virgin in medical-congress sense, viewed with awe and reverence the bearers of honored names; they, most of all visitors at the congress, came with serious intent; they, most of all, led there a life of conflicting emotions; it was their enthusiasm that was easiest to arouse, their criticism that was most violent, their disillusionizings that were most painful. Quite as at a Washington meeting in May!

From a business viewpoint the Germans have worked out a satisfactory method of collecting entrance fees. The most important general address to be followed by the liveliest discussion is placed on the program for the first forenoon. This is widely announced; the session is one that every member and visitor of the congress desires to attend. Everyone goes, but finds the doors jealously guarded by attendants who refuse entrance to all who do not carry tickets of admission. There is nothing for anyone to do but to descend the stairs to the bureau and pay his fifteen marks. This hint may be useful to the financial managers of American associations.

PAPERS READ AT THE CONGRESS OF INTERNAL MEDICINE.

The papers read at the congress in Leipzig include a number of unusual interest. The general subject selected for discussion this year was arteriosclerosis; it was introduced by two principal collective papers, one pathologic, by Marchand of Leipzig; the other clinical, by Romberg of Marburg. They were both good collective articles, bringing the facts of the subject together to date. Of the subsequent special articles read on arteriosclerosis perhaps that of the younger Erb of Heidelberg, "The Artificial Production of Arteriosclerosis," was of most interest. As this has doubtless been reviewed in the American journals, I need not go into its details. Now that the French and he have shown that the disease can be produced experimentally in animals, we have a better chance than ever before of gaining an understanding of it.

De la Camp of Kraus' clinic in Berlin read a paper on the determination of the size of the heart, which was of practical interest and value. A question which has agitated the minds of German clinicians greatly since the extravagant claims of a certain Dr. Smith of somewhat unsavory reputation have been made, is that which concerns the relative accuracy of the various methods of examining the size of the heart. It turns out that simple percussion, if properly carried out, gives as accurate results as any other method. The determination of the absolute heart dullness, the exactness of which may reach to within a few millimeters of the actual, permits, as a rule, the drawing of important conclusions regarding the real size of the heart. Usually, too, the part of the heart lying behind the sternum uncovered by lung substance can be measured by percussion. When the right heart is enlarged the step-like increase in the area of absolute heart dullness on the right can generally be demonstrated. For determining the true size of the heart de la Camp thinks that the method of orthodiagraphy is the best, although it is defective when the heart is markedly enlarged to the left, beyond the left mammillary line.

By combining deep percussion with palpation, the limits of relative heart dullness in more than three-fourths of the cases can be made out to within three-fourths of a centimeter. A combination of percussion with auscultation yields no more exact results.

A sharp criticism is made by de la Camp of the results of methods which use the auscultation of any kind of sound waves produced on the surface of the body for determining the size of the heart. One has to deal in such a method with the propagation of the sound waves through the thorax, and this propagation is modified by skin, muscles and bones. Smith's so-called "heart projections," he asserts, can be produced in the cadaver independently of the position of the heart. The conclusion is drawn that the high degree of variability in the size of the heart, which has been asserted to occur on the ground of the friction method, does not exist and that therefore the foundation of therapeutic measures based on it is not justifiable.

UNIVERSITY OF LEIPZIG.

Heinrich Curschmann is at the head of the department of medicine in the University of Leipzig, and the *Deutsche medizinische Wochenschrift* celebrated the occasion of the Leipzig meeting by publishing a special number, in which all the papers were drawn from Curschmann's clinic. Among

the younger men in internal medicine there may be mentioned Max Friedlaender, Hans Paessler, Max Seiffert and Karl Hirsch.

Surgery is the master clinical subject in Leipzig, represented as it is by Trendelenburg, Tillmanns, Th. Kölliker and G. Perthes. Among the men in junior positions in surgery there, v. Lesser, P. Wagner, H. Braun and Max Wilms may be included.

The scientific laboratories of the medical faculty in Leipzig are among the strongest in Europe. Anatomy, under Professor His, with his staff including Spalteholz, Fick, Held and Kaestner, has had a great development. It was in this laboratory that many of our best American anatomists got at least a part of their training. During the past year, under Professor Spalteholz's direction, Prof. C. B. Jackson of the anatomic department of the University of Missouri carried on an excellent research on the nature and origin of the bone marrow, and Dr. Retzger of the same state demonstrated the anatomic continuity of the muscle of the atrium of the heart and the ventricle, a connection which the physiologists had long ago postulated.

Spalteholz, now that his atlas is off his hands, is concentrating his energies on research work. It is interesting to note in passing that he, too, is profoundly impressed with the importance of the application of chemical methods for progress in the morphologic sciences. In a recent address entitled "*Mikroskopie und Mikrochemie*" he has pointed out the needs in this direction.

The death of Professor His has been felt as a heavy blow by the Leipzig faculty. Although he was nearly 73 years old he had worked daily in the laboratory up to within a few weeks of his death. In a monograph on "The Development of the Human Brain During the First Month," he continued his famous studies on the embryology of the nervous system. In spite of the opposition of Bethe and Nissl, he retained his view regarding the appearance and development of the neuroblasts unaltered, and stated that he held it as established that every nerve fiber arises as a process from a single cell.

Shortly before his death His returned to the study of formalinized cadavers—a field in which he had earlier made most important contributions to science and to teaching. One of his last articles deals with the form and position of the human stomach, the paper being based on eighteen original casts of the organ hardened *in situ*. Prof. His' researches in this direction have shown conclusively that the schemata hitherto adopted are not in accordance with the facts; aside from individual variations, a series of types due to physiologic conditions must be differentiated, such as the empty stomach, the full stomach, the overdistended stomach, the male stomach and the female stomach.

His struggled always for clarity of anatomic ideas. He was the enemy of chaos and vagueness in anatomic conceptions; he was original in his methods and in his mode of approach to anatomic problems. His artistic sense was markedly developed and his work was characterized by an accuracy and a diligence which was remarkable. One has only to repeat the observations of His in order to be astonished at his exactness.

Anatomic Congress at Jena.

The anatomic congress in Jena was an example of what a periodical science meeting in Germany may be. Held in a delightful old university town, with an attendance limited to actual workers in anatomy, the congress had a peculiar charm and pleasure which is lacking where an anatomic meeting is held merely as one section of a large congress of scientists. It may well be questioned if the advantages gained from combined meetings of scientific societies compensate for the losses sustained.

The most interesting discussion at the congress bore on the much vexed question of the origin and nature of the peripheral nerves. Schultze and others supported the old doctrine of Beard and Dohrn as revivified by Bethe, that the peripheral nerves do not arise as outgrowths from single nerve cells but are formed by end-to-end fusion of elongated cells seen in the course of the nerve in the developmental period—cells corresponding to what are usually designated the forerunners of the neurilemma-cells. Von Kölliker and others strongly opposed Schultze's idea and supported the generally accepted doctrine. It is a pity that the beautiful experiments of Harrison, reported later in the summer, were not available in time for the meeting. Harrison, by a most ingenious experiment, seems to have definitely settled the question. Asking himself, "What is the origin of the elongated cells which appear in the course of a developing nerve?" it occurred to him that they might come from the neural crest along with those cells which give rise to the spinal ganglia. In young frog embryos he cut out the neural crest and allowed the mutilated embryos to develop. On killing them later, he found that not only had no spinal ganglia developed but that the elongated cells in the course of the peripheral nerve had also failed to appear. In spite of their absence, however, naked axis-cylinder processes had grown out from the ventral horn cells of the spinal cord to the muscles.

THE CARL ZEISS WORKS.

An interesting feature of the congress was the arrangement made for visits to the Carl Zeiss works and to the Schott glass manufactory. These two industries have transformed Jena. Starting on a very small scale many years ago, they have gradually expanded into the immense enterprises of to-day. Through the courtesy of the Zeiss people, visitors to the congress were conducted through the works and permitted to examine every stage of the manufacture of the wonderful optical instruments there produced. The enterprise is an admirable example of what a manufactory may accomplish when its ideals are not confined to the plane of money-getting. Abbé has been the genius of the institution, but, aside from his marvelous practical power and scientific insight, he has made himself famous by establishing a unique co-operative society known as the Carl-Zeiss Stiftung. Zeiss and Abbé had been partners and when the former died he was succeeded by a son whose talent lay in a different direction, so that his share was bought by Abbé. Desiring in the first place to arrange that the factory would continue its work and its ideals after his death, and in the second place to try an experiment in social and commercial betterment, Abbé decided to give his whole property to a corporation, which should be permanent. It is in the organization of this corporation that Abbé has completed a piece of work which many regard as more significant than any of his optical findings, and for which he has been given the honorary title of *Doctor juris* by a German university. An account of this work as given by Auerbach[7] makes very interesting reading. A perusal of it may be recommended highly to all who interest themselves in the great questions of the relations of capital and labor. Not only do the scientists of the institution have a part in the ownership, but all officers, clerks and workmen, as well as the city itself and the university; all are concerned in creating the values, hence all are to have a share in the profits. In this way it has been possible to establish close relations between means and ends.

In the rules controlling the corporation Abbé has shown his great wisdom. It would take too long to go into the details of the organization; they require careful study in order that they may be fully understood. Suffice it to say that the corporation permits of a management by scientific and business men without exciting antagonism; on the contrary, commanding the interest, loyalty, effort and enthusiasm of the workmen. The profit-sharing scheme has been most ingeniously worked out, apparently to the satisfaction of all. Pension in old age and injury-money for six months in case of discharge are features of the plan.

7. Auerbach, F.: Das Zeisswerk und die Carl-Zeiss-Stiftung in Jena, Ihre wissenschaftliche, technische und soziale Entwickelung und Bedeutung fur weitere Kreise dargestellt. Zweite, vermehrte Auflage, Jena, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Hamamelis Virginiana.

Hamamelis, according to H. R. Coston in *Ther. Gazette*, is a tonic, astringent, hemostatic, antiseptic and vascular sedative, having a special action on the muscular coat of the vessels. Applied locally, it is a valuable remedy for sprains, bruises, fissure in ano, ulcers, varicose veins and the accompanying intractable ulcers. It is of service also, according to the author, in the treatment of phlegmasia alba dolens, eczema, and the poison from rhus toxicodendron. It is also used in the treatment of urticaria from whatever cause.

In cases of capillary hemorrhage and of intermenstrual oozing where the endometrium is lax and congested, this preparation should be applied locally and repeated every few days. By this treatment, he is of the opinion that many curettements may be avoided. In cases of sore and bleeding gums, relaxed uvula and oral ulcers the following is recommended:

℞ Ext. hamamelidis
Aquæ rosæ, āā .....ʒiv 120

M. Sig.: To be used as a mouth wash.

It also is said to possess marked sedative properties, and the distilled extract is valuable as a dressing for burns and herpetic eruptions. Hyperidrosis is relieved by sponging with hamamelis and this drug is also recommended as a local application in the treatment of articular rheumatism; it is applied with thorough friction. In hypertrophic nasal catarrh, good results are said to follow the use of weak solutions of hamamelis in the form of a spray, or applied locally by means of a swab. In ulcers and varicose veins the fluid extract is preferred in full strength or combined with one-fourth the amount of glycerin or olive oil. For congested conditions of the hemorrhoidal vessels, it is recommended in the form of a suppository. For this purpose it may be combined as follows:

℞ Ung. hamamelidis
Ung. stramonii, āā .....gr. x 65
Ol. theobromæ q. s.

M. Ft. suppos. No. i. Sig.: One such suppository night and morning after cleansing the bowels.

He recommends it internally as a tonic to all the mucous surfaces, and states that it is valuable in hemoptysis, hematemesis, menorrhagia, metrorrhagia, and especially valuable in hematuria in half dram (2.) doses. In hematemesis it should be given combined with a solution of adrenalin. In hemoptysis it may be combined with ergot and digitalis. In those forms of vascular diseases, accompanied by distention of the caliber, as in varicocele, varicose veins and varicose ulcers, it serves a good purpose, and is an excellent application when one is in need of a sedative, astringent and antiseptic dressing.

In cases of acute dysentery Shoemaker recommends the following preparation containing hamamelis:

℞ Ext. ergotæ fld.
Ext. hamamelidis fld., āā.....ʒiss 45
Elix. guaranæ .....ʒii 60

M. Sig.: Two teaspoonfuls in water every two or three hours.

He also recommends hamamelis ointments in the treatment of burns, erysipelas, eczema and herpes. In seborrhea, acne and rosacea he advises the following combination:

℞ Ext. hamamelidis fld. 3i-3iss 4-6
Zinci oxidi 3i 4
Pulv. amyli
Glycerini, āā 3ss 2
Ung. aq. rosæ .....ʒi 30

M. Sig.: As an ointment for burns, sunburn, eczema, seborrhea and acne.

In cases of frostbites the following is recommended by the same author:

℞ Liq. plumbi subacetatis.
Tinct. opii, āā .....ʒi 30
Aquæ hamamel. destil. .....ʒii 60
Aquæ .....Oi 500

M. Sig.: To be applied locally to relieve the burning and itching. In cases of pemphigus he advises the following:

℞ Creosoti
Liq. calcis
Aq. hamamel. destil., āā.....ʒiii 90

M. Sig.: To be applied locally.

Pertussis.

The following combination is recommended by the *Med. News* in the treatment of whooping cough:

℞ Sodii bromidi .....gr. xlv 3
Antipyrini .....gr. xv 1
Glycerini .....ʒii 8
Aq. cinnamonii q. s. ad.....ʒiii 90

M. Sig.: One teaspoonful every two hours for a child of one year.

Hygiene Thérapeutique recommends that the patient suffering from pertussis should occupy a large, sunny, airy room. The diet should be substantial, but not bulky. During the acute attack, the patient should have his head supported and the mouth cleansed of mucus. The eyes and ears should be washed frequently with boiled water and the following antiseptic used:

℞ Menthol .....gr. iii 20
Acidi borici
Resorcini, āā .....gr. xxx 2
Petrolati mollis .....ʒi 30

M. Sig.: Place a small piece the size of a pea in each nostril three times a day.

Maier recommends nasal irrigation with a very weak salt water solution. Isolate the patient and watch for complications, such as bronchopneumonia. In such cases he recommends the following:

℞ Potass. iodidi 3ii 8
Tinct. belladonnæ .....m. xx 1 30
Liq. ammon. anis .....ʒi 4
Syr. tolutani .....ʒi 30
Aquæ q. s. ad.....ʒiii 90

M. Sig.: One teaspoonful every three hours.

Other preparations, such as bromids, stimulants, camphor and benzoic acid are also recommended by the author.

Acne in Children.

The treatment of acne in children, according to *Jour. des Pract.*, consists in the restriction of the diet. Coffee, pork, fish, pastry, cheese and spices should be restricted.

The following combination is recommended before meals:

℞ Sodii bicarb. .....gr. iii 20
Magnesiæ calcinata
Pulv. cascaræ sagradæ, āā.....gr. iss 09

M. Ft. capsula No. i. Sig.: One capsule to be taken before each meal.

The face should be washed in very hot water in which have been boiled bran and sodium borate. In the evening, after washing the parts with naphtha soap, the following ointment should be applied:

℞ Beta-naphthol.
Tinct. saponis viridis, āā.....gr. ivss 27
Cretæ prep.
Sulphuris lati, āā.....gr. viiss 50
Petrolati 3vi 24

M. Ft. unguentum. Sig.: Apply locally.

The following morning, after bathing the face, the following lotion is recommended:

℞ Sodii boratis .....ʒi 4
Spts. etheris sulph. .....ʒv 20
Aq. rosæ .....ʒiss 45
Aq. destil. .....ʒiiss 75

M. Ft. lotio. Sig.: Apply locally to the affected parts.

Paralysis Agitans.

Dana, in *Cornell Univ. Med. Coll. Reports*, recommends exercise in the treatment of paralysis agitans, with the object in view of overcoming the weakness and stiffness in the muscles and to overcome the tendency to tip forward while walking.

EXERCISES FOR WALKING.

1. The patient should be instructed to walk up and down the room, taking long steps, at least 28 inches to a stride, and to take 40 steps, then rest.

2. After practicing this for a time, he should walk with the eyes fixed on a point on the ceiling directly over the top of his head as he walks. This compels him to throw the head and shoulders back. He should take long steps, walking in this manner forty times, then rest.

3. He should then learn to turn around rapidly. He should walk according to the foregoing instructions for ten steps, promptly turn around and walk back, and repeat this three or four times, then rest.

EXERCISES FOR THE ARMS.

1. The patient should take a pair of wooden dumbbells, stand erect, and raise them from his side above and back of his head, touching them together. This is to be repeated four times. Holding the dumbbells out straight in front of him, he should carry them back as far as possible in a horizontal line and repeat four times.

2. The patient, standing erect, opens the hands, extending them as far back as possible, stretches out the arms and carries them high above his head and back as far as possible after the fashion of flying. This should be repeated twenty times, the patient holding the head back and looking at the ceiling.

3. The patient should swing a light pair of Indian clubs around full length, each one about twenty times.

4. The patient puts the hands flat on the table, places a weight of about half a pound on the fingers and raises it up ten times with each hand.

5. To stop the tremor, the patient should carry a rubber ball in the hand. By gradually working his hand on the ball he can stop the tremor for considerable periods.

6. Writing and drawing lines and figures should be introduced into his exercise.

7. Fatigue in his exercise must under all circumstances be avoided.

8. After exercise a short but very hot bath, followed by rubbing, is very beneficial.

Anal Fissure.

For anal fissure the following is recommended by *Med. News:*

℞ Sulphuris loti 3vi 24
Potass. bitartratis 3ii 8
Pulv. sennæ 3i 4
M. Ft. cachetæ No. xii. Sig.: One at night as a laxative.

To relieve the pain and to promote healing the following may be used:

℞ Iodoformi 3i 4
Acidi carbolici .....gr. xx 1|30
Petrolati .....℥i 30
M. Sig.: Apply once daily.

Chronic Eczema.

The following combinations are recommended by *Med. Record* in the treatment of chronic eczema:

℞ Sulphuris 3iiss 10
Spts. vini rect. .....℥i 30
Glycerini 3i 4
M. Sig.: Shake well and paint on the affected areas; or:

℞ Sulphuris precip. 3iiss 10
Saponis viridis 3ss 2
Olei cadini 3i 4
Ung. zinci oxidi .....℥i 30
M. Ft. unguentum. Sig.: Apply locally.

℞ Chrysarobini
Acidi salicylici, āā 3iv 15
Sulph. precip.
Saponis viridis
Olei cadini, āā 3v 20
Lanolini 3iiss 10
M. Ft. unguentum. Sig.: Apply locally.

Seborrheic Eczema.

Otto Maier, in *Postgraduate*, recommends in the seborrheic form of eczema that an ointment of boric acid, 2 per cent. strength, be applied for one day to soften the crusts. This is to be followed by an ointment of:

℞ Acidi salicylici .....gr. xv 1
Zinci oxidi
Pulv. amyli, āā 3i 4
Lanolini q. s. ad .....℥i 30
M. Ft. unguentum. Sig.: Apply locally with a mask.

This dressing must be changed every third day. The diet must be regulated and calomel given twice a week in two-grain doses (.12). The bowels must be irrigated with sterile water once a day.

Medicolegal.

Liability for Operating Without Previous Consent.—The Appellate Court of Illinois, First District, says, in Pratt vs. Davis, an action brought by the latter party, that it thinks that both courts, the lower one and it, recognize adequately the great obligations to medicine and to surgical skill under which all civilized communities lie, and would be far from upholding any ungrateful attempt to make liable "for a failure to cure" one who "free from any imputation of malice, wantonness, recklessness, lack of skill, or negligence," had used "whatever of skill or learning and of material equipment were at his disposal," for the relief of the complaining party. Had this case, in the opinion of the court below, been such an attempt, there would have been no judgment for the plaintiff; if it were so in the opinion of this court, the judgment would be annulled. But great as are the obligations to which this court has alluded, they do not confer on the physician or surgeon unlimited power to use his own discretion in the surgical or medical treatment of patients who, suffering from some bodily ailment, come to him for advice and assistance. Undoubtedly an implied license "to have," as the defendant's argument phrased it, "the proper remedial means brought to bear" often exists. The patient may, by his whole course of conduct, without the use of any express language giving consent, evidently place his body at the entire disposal of the surgeon or physician whom he consults. And for a soldier to go into battle with a knowledge beforehand that surgeons attached to the army are to have charge of the wounded, might perhaps be considered an implied license for such operations as the surgeon afterwards, in good faith, performed. Perhaps, too, the various cases which might be supposed of sudden and critical emergency, in which the surgeon would be held justified in a major or capital operation without express consent of the patient, might be referred to the same principle of an implied license. But the broad statement put forth by the defendant as a correct proposition of law, that "when a patient places herself in the care of a surgeon for treatment without instructions or limitations" (it is to be presumed that this means express limitations) "on his authority, she thereby in law consents that he may perform such operation as, in his best judgment, is proper and essential to her welfare," is not one to which this court can give assent. It does not hold, again to quote defendant's counsel, that there is "a universal acquiescence of lay and professional minds in the principle that the employment of a physician or surgeon gives him implied license to do whatever, in the exercise of his judgment, may be necessary." On the contrary, under a free government at least, the free citizen's first and greatest right, which underlies all others—the right to the inviolability of his person, in other words, the right to himself—is the subject of universal acquiescence, and this right necessarily forbids a surgeon or physician, however skillful or eminent, who has been asked to examine, diagnose, advise and prescribe (which were at least necessary first steps in treatment and care), to violate, without permission, the bodily integrity of his patient by a major or capital operation, placing him under an anesthetic for that purpose, and operating on him without his consent or knowledge. Counsel asserted that not a case can be found in the English or American reports where a surgeon has been held liable for performing an operation without the consent of the

patient. This is, perhaps, true. This court has not been able, in its examination, to find such a one, but it by no means follows that the liability does not exist. It would rather indicate that, obedient to the law and the code of professional ethics as well, surgeons have abstained from actions from which the liability would accrue, or at least had not carried the contention that it does not exist in the courts of last resort, It is this court's opinion, except in cases where the consent of the patient is expressed or is implied by circumstances and occasions other than a mere general retainer for medical examination and treatment, and except also where there is a superior authority which can legally and rightfully dispose of the person of the patient, and which gives consent, a surgeon has no right to violate the person of the patient by a serious major operation, or one removing an important part of the body. Illustrations of such superior authority as the court alludes to can be found in the control which the court takes of persons under sentence for crime, the power which is vested in parents over minor children of tender age, and the authority given to legally constituted guardians of the person of those who are insane or imbecile. In a more restricted form, it may be said to exist in the marriage relation, which makes the husband the head of the family. This last authority is not, however, supreme in the matter of surgical operations on the person, and this is really the gist of the decisions in McClallan vs. Adams, 19 Pickering, 333, and State vs. Housekeeper, 70 Maryland, 162, which were urged in argument as showing that the consent of the husband of the plaintiff was not necessary in the case at bar. These decisions are not authority for the proposition that when a wife is herself incompetent from mental condition intelligently to give or to withhold her consent, that the husband's consent is unnecessary, but for the very different proposition that where the wife, competent mentally to decide, assents and desires a dangerous operation, the surgeon is justified in performing it (if it be in his judgment a proper one) without the further consent of the husband. In this case, the plaintiff, who was about forty years old, had been afflicted with epilepsy for many years, ever since she was a young woman. The defendant seemingly considered the fact that she had epilepsy and wanted to recover from it as proving an implied acquiescence in anything he might choose to execute in the way of surgery, and as a sufficient justification for assuming her consent to a major operation, of the necessity or likelihood of which he did not inform her. She went to a hospital under his management, and the next day he performed the operation on her which he spoke of "as appearing on the surface" as necessary—the principal object apparently being to treat a laceration of the womb. She returned to the hospital again, when a hysterectomy was performed, consisting in the removal of the ovaries and uterus from her body. That the consent of the patient herself to such an operation as was performed in this case was necessary if she be in a free condition and in such mental health as implied capacity to decide, the court says that it does not believe has been denied by any court. And, in view of the testimony, both of the plaintiff and the defendant, the court says that the existence of any consent, express or implied, on the part of the plaintiff personally must be eliminated from consideration. Furthermore, the court is of the opinion that the preponderance of the evidence with regard to the husband's consent, was that it was not given for the performance of this major operation. Its conclusion is, therefore, that whether the evidence were to be considered as showing the plaintiff sane or insane at the time of the operation, she would in each case be entitled to recover damages. Without intending to lay down herein a rule to be quoted in subsequent cases, where, perhaps, it might seem as dangerous to recognize in a husband an unlimited right to expose, without her consent, the body of an insane wife to the surgeon's knife, as it evidently is in the eyes of the legislature of Illinois to allow a husband the right to restrain such a wife of her liberty without a judicial inquiry into her insanity, the court says that it might assume, for the purposes of the present case, that as the husband is the head of the family and naturally the protector and guardian of an insane wife's interests, consent by him, implied or expressed, would justify the defendant and avoid the liability charged against him in this action. But it was obvious that to make good this defense, after it had been admitted or had otherwise appeared that no consent of the patient herself could be shown, the defendant must show two things affirmatively: first, that the patient was not mentally in a condition to be in control of her own body; and, secondly, that her husband consented to the operation. On the defendant, as to these matters, lay the burden of proof. The question as to damages resolved itself into this: What damage should be assessed against the defendant for the unauthorized act in removing the uterus of the plaintiff? The law infers damages when any trespass on the person of another is committed. It infers bodily pain and suffering from such an act, and allows damages for them, however difficult they may be of ascertainment or apportionment. Moreover, the court thinks that this was a proper case for the assessment of exemplary damages, and that the amount given, $3,000, was a moderate and judicious one under all the circumstances shown. It would not do to say that neither malice, violence nor recklessness was shown on the part of the defendant, because there was no claim that he was actuated by dislike, hatred or desire to ultimately injure the patient in what he did. He probably thought that the operation would do no ultimate harm and might do good. If the act was an unauthorized trespass on the body of the plaintiff—if it was an act, in other words, in the mutilation of her body, which he knew, or was bound in the eye of the law to know, he had no legal right to do—the absence of such a morally evil intention as before indicated did not relieve it from the imputation of malice in its legal sense. It was willful, and the deliberate intention to commit an act which the defendant was bound in the eye of the law to know was illegal, was there. That made malice in a legal sense. It was violent, oppressive, wanton and reckless in the same sense.

Insanity and Testamentary Capacity.—The Supreme Court of the United States holds, in the will case of Keely vs. Moore, that an application of another party for the admission of the maker of a will to an insane asylum, and the certificate of two physicians as to his insanity, were properly excluded, not only because they were unsworn testimony, but because they were given in a different proceeding and on a different issue. It says that the testator may have been insane to the extent of being dangerous if set at liberty, and yet may have had sufficient mental capacity to make a will, to enter into contracts, transact business, and to be a witness. Besides this, it says, these certificates were both dated December 14, more than two months before the will was made, and were by no means inconsistent with other testimony that the party was released from the asylum as cured February 1, following, and that three weeks after that, when he executed the will, he appeared to be of sound and disposing mind and memory. In addition to the proof of his commitment to the asylum, and of his undoubted insanity prior and for some time subsequent thereto, there was slight evidence of insane acts during the month of February, though there was no opinion expressed by any one that he was incapable of making a valid deed or contract. The whole testimony regarding his insanity was duly submitted to the jury, who were instructed that if they found his insanity to be permanent in its nature and character, the presumptions were that it would continue, and the burden was on the defendant to satisfy the jury by a preponderance of testimony that the testator was, at the time of executing the will, of sound mind. The Supreme Court says that there was no error in this instruction, and it affirms a judgment sustaining the validity of the will.

Diseased Condition of Arteries and Accident.—The Supreme Court of Iowa says that in the case of Binder vs. National Masonic Accident Association there was a contract of insurance which contained the stipulation that there should be no liability for a disability happening directly or indirectly, wholly or in part, because of or resulting in or from any disease or bodily infirmity. The jury were instructed that if the insured

sustained a fall, and if the bursting of an artery was caused thereby, a recovery of benefits might be had, even though it was found that the artery was in a weakened condition by reason of disease. But the Supreme Court thinks this instruction could not be sustained because it entirely ignored the stipulation stated. It says that if it was true, as the jury might have found under the evidence, that the diseased conditions of the arteries aggravated the effect of the accident, if there was one, and contributed to the disability occasioned thereby, then, under the express terms of the contract, there was no liability on the part of the association. The testimony clearly showed a diseased condition of the arteries at the time of the insured's death, and physicians of skill and reputation testified that the condition probably existed at and prior to the time of the alleged accident; that this condition greatly weakened the arteries; and that because thereof a blow "or some other exciting cause might produce apoplexy or paralysis, when in a healthy condition these results would not follow." This court knows of no better evidence of the probable effect of disease than the testimony of skilled medical men, and thinks the testimony in this case competent, and its weight for the jury alone.

Construction of Health Insurance Policy.—The Supreme Judicial Court of Maine says, in the case of Dunning vs. Massachusetts Mutual Accident Association, that in a policy of insurance against accident and disease the conditions of the policy respecting "indemnity for sickness" were as follows: "A disability resulting from sickness or disease in order to constitute a claim, must be continuous, complete and total, requiring absolute and necessary confinement to the house (except as provided under benefit No. 15), and unless the period of total disability under the health provisions shall continue for four or more weeks, no claim shall be allowed for the first seven days' disability, and the sickness or disease shall be such as shall, independently of all other causes, continuously and wholly disable and prevent the insured from attending to any business or duties pertaining to his occupation, profession or other remunerative employment." "Absolute and necessary confinement to the house," the court holds, is made by such a contract an indispensable criterion of the disability which will entitle the insured to the indemnity, and hence a condition precedent to the right to recover. So, in regard to "convalescent indemnity," "if the insured has been confined to the house for seven consecutive days and is thereafter permitted to leave the house by the physician in charge," one-half of the indemnity is recoverable. The company had a right to frame its health policy on the assumption that confinement to the house would be found so tedious and irksome that few would submit to it except under compulsion of a severe illness. The company had a right to make "absolute and necessary confinement to the house" a conclusive test of the disability, and a condition precedent to the right of recovery. It had inserted this condition in the contract in plain and unambiguous language, and no principle of public policy was thereby contravened. To hold that this requirement was not a condition precedent would be to defeat the obvious intention disclosed by the terms employed, and to substitute for the plaintiff's policy a contract not made by the parties.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 25.

1 *Relation of Pathology to Other Sciences. J. Orth, Berlin.
2 *Nephroureterectomy for Tuberculous Disease with a Description of a New Technic. Edward Reynolds, Boston.
3 Society of Sanitary and Moral Prophylaxis; Its Object and Aims. Prince A. Morrow, New York City.
4 *Abuse of Purgation Before and After Operation. I. S. Stone, Washington, D. C.
5 *Cystoscopy. Henry D. Furniss, New York City.
6 Suspected Embolism of the Superior Mesenteric Artery. James A. Nydegger, Stapleton, N. Y.

1. **Pathology and Other Sciences.**—Orth directs attention to the close relationship existing between pathology and the natural sciences. Although pathology necessarily must be in uninterrupted relation to medical art, still it remains first of all an independent physical science which stands on an equal plane with normal anatomy, physiology and physiologic chemistry, and, together with etiology, these form the scientific basis for practical medicine. Orth is of the opinion that the greatest progress of pathology in the immediate future will be along the lines of chemistry.

2. **Nephroureterectomy; A New Technic.**—The indiscriminate application of nephrectomy to all cases of renal tuberculosis is deprecated by Reyonlds as likely in the long run to do more harm than good. He separates his cases broadly into two classes: First, the patients in which the course of the disease is rapid and the constitutional failure marked, i. e., the profoundly tuberculous. These patients should take such chance as they may have under open-air hygiene, because in them operation is but rarely indicated, and then not with the idea of radical cure, but only for the relief of otherwise irremediable suffering of extreme degree. Second, the patients in whom the progress of the disease has been slow, whose constitutional condition is fairly good, and in whom the tuberculosis is not only limited to the urinary tract, but can be conclusively demonstrated to be limited to one kidney, its ureter and perhaps the bladder. In this class of cases Reynolds believes that by a combination of nephrectomy and constitutional care, a radical cure may usually be expected. An operation should not be performed unless an exhaustive physical examination limits the tuberculosis to the urinary tract, nor until a ureteral catheterization has demonstrated the secretion of tuberculous pus from the kidney, and the excretion of a normal urine, free from pus and containing a normal amount of the urinary solids, from the other kidney. Of 8 cases selected as suitable for operation, 2 were exceptional cases of generalized tuberculosis which demanded operation; 2 were subjected to nephrectomy, 1 to nephrectomy with a subsequent ureterectomy, and 3 to nephroureterectomy. The first two patients were distinctly benefited by the operation. Of the remaining 6, 1 patient suffered from a prolongation of symptoms, probably of vesical cause, but was reported in improved health at the end of four years. Four patients are in perfect health after intervals varying from eighteen months to seven years, although 1 has had a subsequent tuberculous abscess, but is again convalescent. After an experience of 9 nephrectomies done for tuberculous and other suppurative disease, without extirpation of the ureter, or with extirpation of only its upper portions, and of 7 complete nephroureterectomies, Reynolds is convinced that the incomplete operations show a longer period of persistence of symptoms, as compared with the complete cases, while in 2 of the 9 incomplete operations he has been obliged to perform a subsequent ureterectomy. He gives a detailed description of a method he employs in this operation and reports 7 cases, without a mortality.

4.—See abstract in THE JOURNAL of January 7, page 59.

5. **Cystoscopy.**—Furniss discusses the value of cystoscopy in the diagnosis of diseases of the bladder, ureters, the kidneys and their pelves.

Medical Record, New York.

February 25.

7 *Loss of Sight from Diseases of the Eye (Amblyopia ex Anopsia). D. B. St. John Roosa, New York.
8 Review of the Recent Literature on the Relation of Human and Bovine Tuberculosis. David Bovaird, Jr., New York.
9 *Advantages of Performing Capital Operations in Selected Cases Without Anesthesia. J. J. Buchanan, Pittsburg.
10 *Four Cases of Chancre of the Lip. Charles M. Williams, New York.
11 *Unusual Case of Pelvic Abscess. W. H. Coe, Auburn, N. Y.
12 *Ear Complications of Scarlet Fever, and Their Treatment. Herman Jarecky, New York.
13 *Epileptic Criminal; with Report of Two Cases. T. H. Evans, Philadelphia.
14 *Higher Education a Cause of Physical Decay in Women. F. W. Van Dyke, Grant's Pass, Ore.

7. **Amblyopia Ex Anopsia.**—Roosa expresses himself as favoring the limitation of this term to those cases where use of the eye has been given up because it involves double vision, the maculæ lutæ being no longer in exactly corresponding positions, as is the case in any form of strabismus. He describes a case illustrating the recovery of sight by a man more than 40 years old after having had an amblyopic eye since his early youth. The case also shows the practicability and importance of the treatment advocated by Javal.

9.—See abstract in THE JOURNAL, Oct. 29, 1904, page 1332.

10. **Chancre of the Lip.**—Williams reports four cases of this kind. In the first case it was absolutely impossible to discover the source of contagion. In the remaining cases the mode of infection was probably by kissing, though in the third and fourth a pipe may have been the carrier of the contagion. The location of the initial lesion in the first case was somewhat unusual, being on the upper lip.

11. **Pelvic Abscess.**—The symptoms in the fatal case of septicemia described by Coe began ten days before a miscarriage. At the autopsy the right broad ligament was found to be somewhat thickened and when its folds were severed a little pus oozed out. Inserting the finger in the opening, the whole was followed outward and backward to the wall of the pelvis where, extraperitoneally, was found a considerable cavity lying against the bare muscles and tendons. This contained a greenish, slimy pus, and extended backward as far as the sacrum. Examination of the interior of the uterus showed nothing except a few drops of yellow pus in the cervix. Coe believes that the original source of the infection was from the uterus.

12. **Ear Complications of Scarlet Fever.**—In considering the etiology of these complications Jarecky concludes that they are due to one of the following causes: 1, Toxins of the disease; 2, extension from the throat, and 3, general weakness. He directs attention to the necessity of removing hypertrophied tonsils, adenoid vegetations and nasal obstructions in children so that when subjected to the strain of scarlet fever they may avoid the principal method of ear infection. Repeated examinations of the ear should be made on account of the uncertainty of the symptoms. For the swelling, itching, etc., of the external ear, a mild dusting powder should be used. In middle ear disease the pain is best treated with hot water irrigations of the canal and a hot-water bag applied to the ear. The local abstraction of blood may control the trouble, and watery solutions of cocain, atropin or tincture of opium dropped into the canal occasionally give relief. The nose and throat, and especially the eustachian tube, should be kept bare of mucus to allow drainage. A 10 to 12 per cent. solution of carbolic acid in glycerin applied directly to the drum membrane frequently gives satisfactory results. Owing to the rapidity with which destruction of aural tissue and extension of infection take place, a paracentesis should be performed as soon as the tympanum shows signs of exudation and the membrane of bulging. There must be sufficient drainage, and frequent irrigation with 1 to 5,000 bichlorid solution must be carried out. Toward the end of the acute stage inflation with the Politzer bag or eustachian catheter helps to get rid of pus and prevents adhesions. Other complications should receive appropriate treatment. If the mastoid is involved Jarecky applies an icebag or the Leiter coil for twenty-four hours, with rest in bed, light diet, cathartics, and frequent irrigation of the canal. There must be a free opening in the tympanum. If the symptoms continue, he urges operation. Opiates, leeching or iodin applications over the mastoid are contraindicated, as they prevent proper examination for tenderness.

13. **Epileptic Criminals.**—Evans cites two cases; one that of an epileptic who committed a murder, and the other that of a woman belonging to the borderland epileptic type who, in a fit of jealousy, attempted to kill her lover. Having these and other cases in mind, Evans formulates the following conclusions: 1. The essence of crime is in the intention, and the ability not so to intend. 2. No punishment is adequate to any crime; restraint not only after the crime has been committed, but effort to hinder any such deed is always preferable. 3. The victims of epileptics ought to have legal ground for suit against the community as well as against those in charge of the epileptic. 4. Reservations ought to be established in which degenerates and the morally irresponsible could be colonized and treated, allowing all possible freedom of initiative for useful and safe pursuits therein. 5. Marriage of neurotics should be regulated. 6. All epileptics are to be viewed with suspicion. Many cases of psychic erraticism, cranks and mistaken reformers are to be taken as examples of epileptic psychic equivalents. The major forms of epilepsy may not prove so dangerous to the community as these veiled manifestations.

14. **Higher Education in Women.**—That higher education is not without its value, and that a woman with talent or genius should have it developed to the fullest extent, meets with Van Dyke's approbation, but he severely criticises the effort constantly being made to force a woman with average ability to keep pace with one possessing well-defined talent. Such efforts are predestined to failure and invariably are productive of deplorable and disastrous results. He advises that the studies of schools and colleges be revised to suit the majority, and that no girl should be urged to go beyond her capacity to learn with a moderate amount of application.

New York Medical Journal.

February 25.

15 Resection of Twenty-three Inches of Grangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis. Report of 33 Cases of Intestinal Obstruction Caused by Unoperated On Appendicitis. (To be concluded.) Clarence A. McWilliams, New York.
16 Myocardial Degeneration. Albert E. Roussel, Philadelphia.
17 Cotarnine Hydrochlorid in Uterine Bleeding. H. J. Boldt, New York.
18 *Brief Review of the Treatment of Prepuerperal and Puerperal Hemorrhages. Charles J. C. O. Hastings, Toronto.
19 Intestinal Perforation in Typhoid Fever. Hugh M. Taylor, Richmond, Va.
20 Lumbar Puncture: Its Value on Diagnosis and Treatment. Edgar P. Cook, Mendota, Ill.
21 Electricity in Otology. J. J. Richardson, Washington, D. C.
22 Retrodisplacement of the Uterus. Helen Hughes, Mankato, Minn.

18. **Prepuerperal and Puerperal Hemorrhages.**—In order to cope satisfactorily with these hemorrhages every practitioner says Hastings, must have decided positively beforehand on his line of action in such cases, and then make the best use of every minute. The successful handling of these cases depends largely on the ability of the physician to classify them properly, as no one method of treatment can be suggested that would be suitable for all cases. If the child is viable, or if a severe hemorrhage has occurred, labor should be induced at once. If the child is not viable and the hemorrhage has been slight, the physician is justified in temporizing, providing the patient can be watched carefully. Hastings expresses the opinion that no condition of the patient in placenta previa ever justifies rapid dilatation or rapid emptying of the uterus. If the child is viable, or if a severe hemorrhage has occurred, the patient a primipara and the os rigid, draw down the cervix and pack the cervix and vagina with iodoform gauze. If properly done this will usually stimulate uterine contraction and satisfactorily control the hemorrhage. In a few hours, in the vast majority of cases, the os will be sufficiently dilated to admit of digital dilatation. If the hemorrhages are not severe, pains strong and regular, the head or buttocks engaged, watch and wait. If the hemorrhage increases, rupture the membranes. If this is not effectual bring down a foot, but do it gently, so as to disturb the placenta as little as possible, and to produce the least possible shock to the mother. If the hemorrhage is extensive or severe, with the cervix fairly well dilated, version should be performed, the membranes ruptured and a foot brought down. If the patient is not exsanguinated or suffering from shock, use gentle, intermittent traction not exceeding two pounds. Should, however, either of the conditions mentioned exist, restoratives should be used at once, such as normal saline solution, morphin, strychnin, digitalin, or an

ether or a whisky hypodermic. After delivery the placenta and membranes should be removed at once, and if hemorrhage continues, draw down the uterus, pack the entire uterine cavity, cervix and vagina with sterilized gauze. Hastings says the hydrostatic and pneumatic methods of dilatation are practically limited to hospital practice. The same can be said of cesarean section. Bossi's dilator and every other metal dilator he condemns as being most dangerous. No method of treatment should be adopted that will diminish the mother's chances in the slightest degree. Hastings also condemns the practice of relinquishing old and tried methods for the sake of experimenting with something new. The treatment of postpartum hemorrhage he considers largely preventive. If, however, it does occur, and the placenta is still in the uterine cavity, with extensive hemorrhage and with a poorly contracting uterus, remove the placenta with the gloved hand, allowing the hand to remain in the uterine cavity until expelled by the contractions of the uterus. If the uterus is empty when the hemorrhage occurs, give a hot douche at 120 F., or the same with a 3 per cent. acetic acid, and then pack with sterile gauze, drawing down the uterus, as for vaginal hysterectomy, to do so.

Boston Medical and Surgical Journal.

February 23.

23 Eyestrain as a Factor in Functional Nervous Disabilities. Myles Standish, Boston.
24 Eyestrain as a Factor to Be Considered in Children Backward in Their Studies. Allen Greenwood, Boston.
25 Eyestrain Considered as a Factor in the Production of Lateral Curvature of the Spine. Henry W. Kilburn, Boston.
26 Eyestrain and Reflex Phenomena of Nasal Origin. Henry H. Haskell, Boston.
27 In What Cases Should Eyestrain Be Suspected? Edwin E. Jack, Boston.
28 Difficulties Encountered in the Prescription of Glasses. Fred M. Spalding, Boston.

Medical News, New York.

February 25.

29 *Expectant Treatment of Appendicitis. An Excursion Into the Field Between Surgery and Medicine. A. C. Bernays, St. Louis.
30 Observations on the Morphology and Classification of the Mycobacterium (Bacillus) Tuberculosis. Charles F. Craig, San Francisco.
31 *Clinical Studies in Ureteric Meatoscopy. Walter C. Klotz, New York.
32 Sprains of the Knee and Ankle Joints. J. T. Wilson, Sherman, Texas.
33 *Syphilis of the Lung Simulating Phthisis. William E. Hughes and Robert N. Willson, Philadelphia.

29. **Expectant Treatment of Appendicitis.**—Bernays' views on this subject are exactly contrary to some that have recently been very extensively circulated, and which, he says, are intended to influence the general practitioner in his method of treatment of appendicitis cases which are not deemed suitable for operation. Bernays advises that in all cases of acute appendicitis the administration of food should be very scant, but that cathartics and large enemata of warm water should be given regularly without regard to the treatment contemplated. Of course, he continues, the ideal method of treatment is the operative method carried out in the beginning of the attack, but, if for some cause, this time has been allowed to pass, the expectant treatment will often give better results than the operative. He has never seen escape of intestinal contents caused by the cathartic, either into the abscess cavity or the peritoneal cavity. Rest in bed, with large, moist, warm antiseptic poultices over the abdomen is also recommended. He believes that the regular use of cathartics will materially decrease the mortality of acute appendicitis, no matter by what other methods they are treated afterward.

31. **Ureteric Meatoscopy.**—Valuable information can often be obtained, says Klotz, by cystoscopic inspection of the ureteric orifices. With a view to determining how far these changes could be relied on as a means of diagnosis in diseases of the kidney, Klotz has carefully noted the cystoscopic findings in cases of suspected renal disease. The first group comprises 12 cases of nephrolithiasis. In 4 out of 5 cases of nephrolithiasis it was noted that the ureteric orifice on the diseased side was surrounded by a reddened and edematous mucous membrane, almost obliterating the ureteral opening, which was situated at the summit of the tumor. In 1 case no such change was noted and the calculus was found outside the wall of the ureter. In 2 cases in which changes were noted in the ureteric orifice and in which no stone was found at operation, Klotz suggests that it is possible that the stone was passed either just before cystoscopy or between the time of cystoscopy and operation. In the remaining 6 confirmed cases of renal disease changes were found in the ureteric orifice in 5. In the case in which ureteric meatoscopy was negative, ureteral catheterization was of distinct service. He is of the opinion that although ureteric meatoscopy can not replace ureteral catheterization in all cases, it may frequently furnish additional information and be of great service in those cases where ureteral catheterization can not be carried out. Before ureteric meatoscopy can be placed on an absolutely safe clinical basis it is necessary to decide what constitutes a normal and what an abnormal ureteric orifice, the causes of any pathologic changes and whether the absence of change in the ureteric orifice is of any value in making a negative diagnosis.

33. **Pulmonary Syphilis Simulating Phthisis.**—Hughes and Willson report the case of a man, aged 32, family and personal history negative, who complained of cough and profuse expectoration which persisted after a severe cold. Within four weeks of the onset of his trouble he began to expectorate blood, at first occasional small streaks in the sputum, but gradually increasing in quantity. The patient appeared well nourished and felt well in every way except for his cough. Physical examination was negative except so far as it concerned the chest. The right chest seemed more prominent than normal, especially over the lower portion. The expansion was relatively impaired over this area; percussion resonance was also impaired over the entire right lower lobe, especially posteriorly. Tactile fremitus was slightly increased. Fine crackling râles and a scraping friction sound were heard on deep inspiration just below the upper border of the right lower lobe. Above and to the outside of this area skodiac tympany was easily obtained. The apex was negative and the left lung was normal except for poor expansion. No evidences of a syphilitic infection could be found. The temperature varied between 97 and 100. The pulse averaged 90; the respirations gradually fell from 30 to normal. The urine was normal. There were no night sweats, little loss of weight; the appetite was good. No tubercle bacilli could be detected at any time in the sputum. Aspiration of the affected lung gave a syringeful of dark red blood, floating in which were large flakes of lymph, evidently from the surface of the pleura. Microscopic examination of the fluid was negative. The diagnosis hovered between incipient pulmonary disease, tubercular phthisis and syphilis. Finally the patient was placed on potassium iodid, 1 dram three times a day, and within twenty-four hours the expectoration diminished and there was less blood. After three days the sputum contained no blood and the cough had largely disappeared. Within four days more there was no cough, the sputum was mucopurulent, but in slight quantity, and the patient felt perfectly well. On therapeutic grounds, therefore, a diagnosis of pulmonary syphilis was made.

Lancet-Clinic, Cincinnati.

February 25.

34 Consumption and Its Borderland—Public and Professional Concern. Paul Paquin, Asheville, N. C.
35 *Pathologic Changes Resulting from Prostatic Enlargement. Charles E. Barnett, Fort Wayne, Ind.
36 Case of Bilateral Tic Douloureux Treated by Removal of the Right Gasserion Ganglion and Excision of the Left Inferior Dental Nerve. W. O. Bullock, Lexington, Ky.
37 Climatic Advantages. Charles F. Beeson, Roswell, N. M.

35.—See abstract in THE JOURNAL, Oct. 29, 1904, page 1326.

St. Louis Medical Review.

February 18.

37½ Examinations for Bacillus Tuberculosis. I. S. Wile, New York.
38 Nihilistic Surgeon and the Therapeutic Optimist. W. C. Abbott, Chicago.
38½ The Mutation Theory, Heterogenesis, Spontaneous Generation and the Evolution of Morbid Germs. Jonathan Wright, New York.

Illinois Medical Journal, Springfield.

February.

40 Cardiac and Renal Aspects of Pneumonia. A. R. Elliott, Chicago.
41 *J. B. Murphy's Technic for Abdominal Hysterectomy. J. N. Neff, Chicago.
42 *Simple Method for Gastroenterostomy, Ureteral and Intestinal Anastomosis. H. M. Hepperlin, Beatrice, Neb.

41. **Abdominal Hysterectomy.**—The technic for abdominal hysterectomy used by J. B. Murphy for the past two and a half years is described by Neff. The advantages of the method may be summed up as follows: 1. The tumor and uterus can be removed almost as readily and as rapidly as an ordinary ovarian cyst, the average time required for the entire operation being from fifteen to thirty minutes. Most of the time is consumed in covering the abraded surfaces with peritoneum. 2. The danger of injury to the ureters is reduced to the minimum by rolling, instead of cutting, the uterus out of the surrounding connective tissue, thus following the natural lines of separation. 3. There is practically no danger of secondary hemorrhage as each vessel is ligated separately. The various steps of the operation are described in detail *ad seriatum*.

42. **Gastroenterostomy, Ureteral and Intestinal Anastomosis.**—Hepperlen's method of intestinal anastomosis by means of a gelatin bobbin is given in THE JOURNAL, March 26, 1904, page 854. Since then he has also made use of this device in gastroenterostomies and in ureteral anastomoses. For the former he uses a bobbin that has a small flange molded on one end of it to hold it securely in the bowel. After taking an interrupted suture on either side of the openings in the bowel and stomach, he introduces the gelatin cylinder, ties the parts together with the sutures thus introduced, thereby attaching the bowel to the stomach, and then finishes the anastomosis just as in the case of an enterostomy. For ureteral work he uses a small cylinder of gelatin with an opening through the center, oval at each end. The cut ureter is caught with two stitches, passed through each end on opposite sides. These are used to assist in drawing the ureter over the gelatin cylinder, and then they are tied to hold them in place. The object in having the small opening through the cylinder is to allow the urine to pass through, so that there will be no stoppage in the canal before the gelatin absorbs. The operation is completed in the usual manner used for intestinal and stomach work. Hepperlen claims that by using this method the work can be accomplished in a shorter time, more securely, and with less shock and a lower mortality than by any other method.

Canada Lancet, Toronto.

February.

43 Myocardial Arterial and Valvular Disease. H. A. Hare, Philadelphia.
44 *Sarcomas Successfully Treated with X-rays. J. McMaster, Toronto.
45 Some Points in the Administration of Anesthetics. G. H. Carveth, Toronto.
46 Erysipelas Complicating Labor Successfully Treated by Antistreptococcic Serum. A. R. Hanks, Toronto.

44. **X-Rays in Sarcoma.**—McMaster reports five cases of sarcoma in which treatment with the *x*-ray proved entirely successful. The first patient, a boy of 14 years, had a large sarcoma of the right superior axilla. Fifteen vigorous applications, made in forty-two days, given both on the outside and through the mouth, caused a diminution in the size of the growth with a decided relief from pain. After the surgical removal of the entire bone and tumor half a dozen more treatments were given, and there is no sign of recurrence after three years. From the second patient, a round-celled sarcoma was removed from the region of the parotid gland. *X*-ray treatments were begun soon after the operation and fifty treatments were given. At first they were given three times a week, and after six weeks, twice a week. Over two years have elapsed since the operation was done and there is no sign of metastasis nor of recurrence. The third case was similar to the second. A tumor was removed from in front of the ear and on microscopic examination it was found to be a small-celled sarcoma. A new development resulted at the site of operation within a few months. After a dozen energetic treatments with the *x*-ray there was marked evidence of softening in the growth. Coley's toxins were used in conjunction with the *x*-rays and were pushed to the limit of tolerance. Except for a transient erythema, and the formation of an abscess, the case progressed favorably. McMasters says that the result was all that could be desired, and a cure is being hoped for with increasing confidence. The fourth patient had a large, hard swelling at the angle of the jaw, which extended down the neck to the clavicle and up behind the ear for about two inches. The case was considered inoperable. It was rayed for four months. In its upper part softening and suppuration took place and the growth melted away rapidly. About the third month of treatment the use of Coley's fluid was begun and continued for five weeks without result. The patient continued to improve and there is now, after about ten months, not the slightest evidence of anything ever having been wrong. The fifth patient, a young woman aged 21, had a small sarcoma removed from in front of the ear. It recurred and was again removed, only to return once more, growing more rapidly than before. The case is improving under *x*-ray treatment and McMasters promises a full report later. In none of these cases did autointoxication present any difficulty. In all of them *x*-ray irritation was difficult to produce, and, being produced, the patients reacted promptly. The patients tolerated large doses of radiation for a protracted period of time. McMasters considers the *x*-ray a valuable curative measure in the treatment of sarcoma.

Denver Medical Times.

February.

47 *Tubercular Peritonitis. C. H. Mayo, Rochester, Minn.
48 Hyperchlorhydria—Diet and Gastric Analysis. J. R. Arnell, Denver.
49 Normal Obstetrics. T. M. Burns, Denver.

47. **Tubercular Peritonitis.**—The incidents and pathology of this condition are discussed by Mayo. He has seen 4 cases of tubercular peritonitis in the upper abdomen which recovered after laparotomy with removal of the fluid, and in which the source of infection could not be located in the limited examination then made, although many adhesions were found about the region of the gall bladder, pylorus and duodenum. One was in a man, the other three were in women. The patients were all between 40 and 50 years of age. The failure of all methods in vogue for the treatment of this condition has led him always to search for the original lesion and to remove it, leaving the peritoneal condition to cure itself, and closing the abdomen without drainage. The abdominal conditions always point to the source of the disease by the congestion, increased matting of the miliary deposit or increase of general adhesions. Tuberculosis of the vulva, vagina and cervix is not a common disease, and tuberculosis of the uterus is uncommon during menstrual life, but is found before puberty and after the menopause. Tuberculosis of the tube is common and acts on the mucous membrane as a local lupus. He has found that the increased percentage of cases of tubercular peritonitis occurring in women is from tubal involvement, and even when the tube appears in fair condition; drying the peritoneum and closing the abdomen resulted in a primary cure, yet some patients later appeared with pelvic masses and a second laparotomy with the removal of caseating tuberculous tubes resulted in permanent recovery. If the general condition is such as to render operation extremely hazardous as well as futile, operation must be refused. In males Mayo makes the incision over the appendiceal region, while in women it is so arranged as to explore the pelvis. A tubercular appendix in an early stage, before miliary deposits appear, may at times be diagnosticated at operation by the large size of the glands of the mesenteriolum. Care must be employed not to open the bowel in separating plastic adhesions of the intestine. As a rule, it is best to keep close to the parietal or pelvic peritoneum, separating as few adhesions as possible in exposing the region affected. In some cases the tubal enlargement can be pierced and its entire contents of caseating débris and lupoid material removed, leaving the outer fibrous and peritoneal layers *in*

situ, then applying iodin or iodoform emulsion in glycerin to the diseased area, and closing the abdomen without drainage. The Mayos have made this complete operation on 26 cases of tubal origin with only 1 death. They have performed 59 operations for tubercular peritonitis by the older methods; 42 were cured, 15 improved, and 2 died. There were 58 operations for the removal of tubercular tubes, with 56 recoveries and 2 deaths; and 27 cases of tubercular appendicitis without a death.

American Practitioner and News, Louisville, Ky.

February.

50 Thrombosis Following Laparotomy. J. B. Richardson, Louisville.
51 *Care of the Throat in Pulmonary Tuberculosis. G. A. Robertson, Louisville.
52 Follicular Tonsilitis. S. P. Myer.

51. **The Nose and Throat in Phthisis.**—Robertson advises the removal of nasal spurs, septal ridges and hypertrophied turbinates; opening up the nostrils to make as much space in the nasal chambers as possible; the removal of adenoids, hypertrophied and diseased tonsils, and every other nasal or pharyngeal condition which may produce a lowered vitality and thus favor the development of tuberculosis. Those who have this disease should have their nasal and aural cavities thoroughly overhauled and cleared up. All atmospheric conditions that are deleterious to respiratory surfaces must be avoided. A constant inhalation of irritating particles is hard on the throat, making the lining membranes lax, congested, and susceptible to infections of all kinds. The larynx should be inspected carefully because in many cases tuberculous involvement can be avoided. Robertson does not advise local applications to the larynx, even in evident ulceration. He depends on cleansing sprays and simple alkaline washes; care of the voice; control of cough and a constant attitude of watchfulness to prevent involvement of these mucous membranes.

Northwestern Lancet, Minneapolis.

February 15.

53 *Indications for the Goiter Operation and Its Technic. G. Schwyzer, Minneapolis.
54 How May the Usefulness of the County Medical Society Be Extended? T. R. Watson, Zumbrota, Minn.

53. **Indications for Goiter Operations.**—Should we operate for an enlarged thyroid for cosmetic purposes, is the question which Schwyzer attempts to answer. While an operation will generally be conceded as proper in very unsightly, though otherwise harmless goiters, it remains entirely with the individual ability and cleanliness of the operator how far he will feel justified through his results to advise operation for lighter forms. The diffuse, soft hypertrophy of the thyroid met with in adolescent people, is a condition which is usually best not operated on, as treatment with iodin or thyroid extract gives good results. Schwyzer favors local anesthesia because there is less danger from asphyxiation. The patient must so lie on the operating table that the neck is easily accessible. A horizontal incision gives perfect cosmetic results. After the goiter is well laid bare, and one or both inner borders of the sternocleidomastoid muscles are freed from their fascia, it ought to be the operator's aim to dislocate the goiter on the surface of the neck as early as possible. The next step is the ligation of the inferior thyroid, which is best done at some distance from the trachea in order to avoid interference with the recurrent laryngeal nerve; the communicating arteries about the isthmus can be clamped and tied, together with the isthmus. Schwyzer says that it is wise to leave a portion of the posterior goiter capsule over the lateral portion of the trachea in order to keep the recurrent laryngeal nerve sheltered. In 23 cases, anesthesia was obtained with a 0.5 per cent. cocain solution; and in 14 cases, the operation was done under general anesthesia, ether being the anesthetic used. One death occurred in an exophthalmic goiter of extreme degree six hours after the operation under rapid increase of the symptoms of thyroid intoxication. The remaining 36 cases healed promptly without any wound infection. One case, operated on under general anesthesia, for reappearing goiter, left the hospital with a partial paralysis of the corresponding vocal cords. Another patient, operated on under cocain anesthesia, remained somewhat hoarse for a few weeks following the operation.

Archives of Pediatrics, New York.

February.

55 Clinical Features of Cerebrospinal Meningitis. F. Huber, New York.
56 *Epidemic of Vulvovaginitis Among Children. A. C. Cotton, Chicago.
57 *Diphtheria in Early Life. A. Seibert, New York.
58 *Heat Values and Food Values. H. P. Armsby, Philadelphia.
59 *Alkalies in Infant Feeding. T. S. Southworth, New York.

56. **Vulvovaginitis Among Children.**—The epidemic discussed by Cotton extended from August, 1902, to September, 1903. During this period 319 children were admitted to the hospital, exclusive of the maternity and scarlet fever annexes, the average age being 7 years and 2 months. There were 151 girls and 168 boys. The cases known to be infected numbered 19, only 1 of these being a male. The extremes of ages were six months and 16 years; between these there were 1 of eight months, 2 of 2 years, 7 of 3 years, 2 of 4 years, 3 of 6 years, 1 of 9½ years, and 1 of 10 years. The first discharge was from the urethra of a 2-year-old boy, under treatment for rectal fistula, 17 days after his first operation, during which interim he had been taken daily to the dressing room or clinic. Gonococci were next found in the vulvovaginal discharge of a typhoid patient, 2 days after admission and five days after the reported cure of the first case. These 2 patients appear to have furnished the infection for the entire epidemic. Six girls developed vulvovaginitis inside of 21 days; 3 were typhoids, and 3 were surgical cases; all were diapered and all had temperatures taken daily per rectum, with the ward thermometers. No new cases appeared for 54 days when a vaginal discharge was observed in an eight-months-old surgical case. Most of the patients were infected from the first two cases that occurred. The discharge yielded only to the more heroic forms of treatment, such as douching with strong antiseptic solutions, 10 per cent. protargol, every four to six hours, preceded by 1 to 2,000 permanganate of potassium solution, and some obstinate cases required additional packing of the vagina with gauze saturated with 2 per cent. solution of protargol. Of the 18 patients who showed the infection in the hospital, 10 were discharged cured, 2 died of intercurrent disorders and 6 were removed while still under treatment. Cotton urges that every hospital for children must be protected against infection from without by well-arranged detention wards, in which the newly-admitted patient may be subjected to the closest scrutiny for a period of at least fourteen days to determine his freedom from an acute infection. A complete hospital should also have properly located isolation wards to which patients may be removed on the first appearance of suspicious symptoms of an acute infection. A patient in the children's hospital showing gonorrhea should be promptly isolated and placed in charge of a special nurse. The interne or nurse, while treating a gonorrheal patient should be relieved from other duties in the children's wards. The same care by nurse and physician in sterilization is as necessary as would be observed in going from a child with any acute infection to a non-infected child. The efficiency of any isolation may be questioned which does not individualize strictly, not only in regard to the treatment, care and manipulation of the patient, but in the use of clothing, bed linen, feeding utensils, thermometers, douche pans, etc.

57. **Diphtheria in Early Life.**—Seibert reports cases of diphtheria occurring in very young children, the youngest being seven weeks old, and the oldest twenty-three months. He cautions against errors of diagnosis based on the negative report as to the presence of the Klebs-Loeffler bacillus in doubtful cases and urges the early administration of the serum whenever diphtheria is suspected.

58. **Heat Values and Food Values.**—According to Armsby the food value of a nutrient as a source of energy to the organism is not measured by the total energy which it can liberate as heat in the body, but by the part of this energy which is available to the organism for physiologic uses. The remainder of the

fuel value simply serves to increase the generation of heat in the body, a result which may be advantageous or the reverse, according to the surrounding conditions.

59. **Alkalies in Infant Feeding.**—The actions of alkalies and their indications in infant feeding are discussed by Southworth. A considerable amount of the alkali may prevent all stomach digestion, forcing the task of digestion on the intestine, which, while often useful for limited periods, must necessarily interfere with the development of the gastric functions so necessary for the normal stomach if it is to become fitted to digest the solid diet of the adult. By adding a moderate amount of alkali, the task laid on the stomach may be limited to one it is able to perform. The choice between these two measures, or the possible rejection of both, depends entirely on the type of case in hand. Milk diluted with plain water containing no alkali is promptly clotted in the stomach by the rennet ferment, and the clot is transformed into tougher masses when acid is secreted. Lime water added to milk checks the immediate action of rennet on the whole mass and makes the clotting more gradual, altering the form of the curd and allowing, possibly, of the passage of some unaltered milk into the intestine, but leaves no large amount of alkali behind to inhibit the stomach digestion. With bicarbonate of soda added to milk, the action of rennet, hydrochloric acid, and pepsin are all prevented by the greater amount of antacid present until this is finally neutralized. In the meantime, portions of the milk are not liable to get beyond the fluid state and continue to escape into the intestine. This reduces materially the burden of digestion laid on the stomach or, if the alkalinity persists a sufficient time, relieves it entirely, the labor falling on the intestine. In the young infant the stomach is just beginning its functions, and the earliest secretion which acts on the milk is rennet. Hence, it is not difficult to understand the clinical effects of adding 10 per cent. lime water or 2 grains of bicarbonate of soda to the ounce, to the food of very young infants. The food is weak in that the proportion of milk is small. The milk is decidedly alkaline so that the rennet ferment will not act and the effect is to promote rapid emptying of the stomach, for whereas curded milk tends to be retained by the stomach, fluid milk tends to pass into the intestine. This assists in tiding the infant over a period of undeveloped and difficult gastric digestion, and as later the alkali is reduced, directly from 10 per cent. to 5 per cent. or from 2 grains to 1 grain to the ounce, and also as the amount of alkali relative to the milk is indirectly increased by augmenting the amount of milk in the mixture, the effect of the alkali is gradually lessened. The effect of adding alkalies to the food seems, then, to be that of influencing the place and type of the digestion of the food, and the problems which must be worked out in the near future will be to determine the proper kinds of alkali and the quantity of such alkali to be added if we desire to produce certain specific results; and also to determine more accurately the indications for their use or non-use in different types of cases.

American Journal of Orthopedic Surgery, Philadelphia.

January.

60 Some Remarks on the Treatment and After-treatment of Congenital Dislocations of the Hip. Adolf Lorenz, Vienna.
61 Ultimate Results of My Bloodless Reposition of Congenital Dislocation of the Hip. A. Hoffa, Berlin.
62 *Argument Concerning the Method of Treatment of Congenital Dislocation of the Hip. H. M. Sherman, San Francisco.
63 A Case of Double Congenital Supracotyloid Dislocation of the Hips with Cross-legged Progression. H. L. Taylor, New York City.
64 Disadvantages of the Frog Position in Reduced Congenitally Dislocated Femur. E. H. Bradford, Boston.
65 Prof. Lorenz's Operation for the Reduction of Congenital Displacement of the Hips. E. N. Smith, London.
66 A New Method of Recording Rotation in Scoliosis. R. T. Taylor, Baltimore.
67 A Simple and Rapid Method of Recording the Lateral Deviation of the Spinous Processes in Scoliosis. A. H. Freiberg, Cincinnati.
68 Study of the Treatment of Scoliosis Based on Anatomic, Pathologic and Mechanical Findings. R. T. Taylor, Baltimore.
69 Treatment of Club-foot. Are the More Extensive Cutting Operations Necessary? B. E. McKenzie, Toronto.

62.—This article appeared in THE JOURNAL, Jan. 7, 1905, p. 31.

Quarterly Journal of Inebriety, Hartford, Conn.

January.

70 Scientific Aspects of Moderate Drinking. Francis G. Benedict.
71 Alcohol as a Factor in Rendering Mothers Incapable of Nursing Their Children. C. W. Stewart, Battle Creek, Mich.
72 The Medical Profession and the Use and Abuse of Alcohol. T. N. Kelynack.
73 Dipsomania and Inebriety. William Lee Howard, Baltimore.

Interstate Medical Journal, St. Louis.

February.

74 Introduction to the Semeiology of Diseases of the Nervous System—Symptoms Which Cannot Be Induced by the Will and Their Medicolegal Importance—a Lecture Delivered at l'Hôpital de La Pitie. J. Babinski, Paris.
75 Case of Sepsis Post-Abortum. Ernest Jonas, St. Louis.
76 Esophageal Stricture. John C. Morfit, St. Louis.
77 The Silver Fork Deformity. Nathaniel Allison, St. Louis.

Pacific Medical Journal, San Francisco.

February.

78 Notes on Typhoid Fever. R. J. Smith, Smithfield, Utah.
79 The Egg. Winslow Anderson, San Francisco.

Virginia Medical Semi-Monthly, Richmond.

January 27.

80 *Effect of Suspensio-uteri on Pregnancy and Labor. Jos. Taber Johnson, Washington, D. C.
81 Adenoids: The Harm They Do and What to Do with Them. F. M. Hanger, Staunton, Va.

February 10.

82 Diseases of the Eye, Ear, Throat and Nose. John Dunn, Richmond.
83 Plea for the Clinical Study of Psychiatry. Edward N. Brush, Towson, Md.
84 Medical Supervision of Matrimony. A. B. Greiner, Rural Retreat, Va.
85 Some Advances in Modern Medicine and the Benefits of Organized Effort. J. S. DeJarnette, Staunton, Va.

80.—See abstract in THE JOURNAL of January 7, p. 60 (Johnson).

Ophthalmic Record, Chicago.

February.

86 Case of Bilateral Hysterical Amaurosis. Adolph O. Pfingst, Louisville.
87 Papilloma of the Lachrymal Caruncle. C. A. Veasey, Philadelphia.
88 Penetrating Shot Injuries of the Eyeball. L. D. Brose.
89 Leucosarcoma of the Choroid with Secondary Involvement of the Ciliary Body. C. A. Veasey, Philadelphia.
90 Ophthalmia Nodosa. H. V. Würdemann, Milwaukee.

Bulletin of the American Academy of Medicine, Easton, Pa.

February.

91 Is the Present Method of Educating Girls Consistent with Their Physiologic Development, and Is It for the Welfare of the Race? A. L. Smith.
92 "Is Equal Treatment of the Sexes Best, or Do Girls Require the Same Treatment as Boys?" S. H. Weeks, Portland, Me.
93 The Gynecologic Aspect of Mental Overstrain at Puberty, and Its Influence on Development. Wm. E. Darnall, Atlantic City, N. J.
94 Effect of Modern School Methods on the Health of the Teacher. J. L. Greeley, Jamestown, N. Y.

Iowa Medical Journal, Des Moines.

February 15.

95 Surgical Treatment of Stomach Trouble and Biliousness. J. E. Summers, Jr., Omaha.
96 Acute Suppurative Osteomyelitis. C. B. Powell, Albia.
97 Concussion of the Brain. E. O. Plumbe, Rock Valley.
98 Minor Surgery. T. A. Hobson, Parkersburg.
99 Home Treatment of the Injured. J. V. Brann, Knoxville.

Fort Wayne Medical Journal-Magazine.

February.

100 Treatment of Foreign Bodies in the Eye. W. H. Snyder, Toledo.
101 Heredity. A. P. Buchman, Fort Wayne.
102 Cholelithiasis. E. J. McOscar, Fort Wayne.
103 Accidental Surgical Cases. A. W. Chase, Adrian, Mich.

Colorado Medicine, Denver.

February.

104 Intra-pleural Complications in Pulmonary Tuberculosis. S. G. Bonney, Denver.
105 Pleurisy with Effusion and Empyema. Importance of Early Diagnosis and Treatment, from Standpoint of Internist. James Rae Arneill, Denver.
106 Case of Pernicious Anemia. O. M. Gilbert, Boulder.
107 Clinical Experience with Dunbar's Pollantin in Hay Fever. W. W. Bulette, Pueblo.

Medical Sentinel, Portland, Ore.

February.

108 Abortions. C. S. White, Gervais, Ore.
109 Methods Observed in the Chicago and New York Hospitals. C. W. Shaff, Lewiston, Idaho.
110 Experiences with the X-ray. D. Campbell, Butte, Mont.
111 Milk as a Diet for Children. Grant S. Hicks, Tacoma.

Bulletin of the Johns Hopkins Hospital, Baltimore, Md.,

February.

112 Teaching of Anatomy Illustrated by Professor Barker's Manual. F. P. Mall.
113 Anatomical Laboratory of the University of California. J. M. Flint.
114 Anatomical Material—Its Collection and Its Preservation at the Johns Hopkins Anatomical Laboratory. F. P. Mall.
115 Development of Grave Robbing in England. G. C. Robinson.
116 Flechsig's Investigation on the Brain. F. R. Sabin.
117 Developmental Relations of the Kidneys and Ureter in Human Embryos. A. G. Pohlman.
118 Abnormalities in the Form of the Kidney and Ureter Dependent on the Development of the Renal Bud. A. G. Pohlman.
119 First Appearance of the Renal Artery and the Relative Development of the Kidneys and Wolffian Bodies in Pig Embryos. E. C. Hill.
120 High Bifurcation of the Brachial Artery with Reunion at the Elbow. M. Herrinton.
121 Fixation of Tissues by Injection Into the Arteries. B. D. Myers.
122 Convenient Still to Make Absolute Alcohol. W. J. Calvert.

Journal of the Medical Society of New Jersey, Newark.

January.

124 Review of Recent Progress in Surgery. F. D. Gray, Jersey City, N. J.
125 Vibratory Massage in General Practice. Wm. G. Schauffler, Lakewood, N. J.
126 Gastric Ulcer. A. Marcy, Jr.
127 Management of Hospitals. W. J. Chandler, S. Orange, N. J.
128 Lithotomy. J. W. S. Gouley, New York City.
129 Physiologic Therapeutics in the Treatment of Locomotor Ataxia. W. H. Walling, Atlantic City, N. J.

Kentucky Medical Journal, Louisville.

January.

130 Enzymes of the Blood. D. J. Healy, Lexington, Ky.
131 Some Small Things in Surgery. Infections of Hand, Machine Injuries, Sutures, Granulating Wounds, Leg Ulcers, Circumcision. H. J. Whitacre, Cincinnati.
133 Pott's Fracture. A. P. Dowden, Eminence, Ky.
134 Ectopic Gestation—Diagnosis and Cases. M. A. Tate, Cincinnati.
135 Radical Cure of Inguinal Hernia. A. Schachner, Louisville.
136 Diagnosis of a Few Orthopedic Conditions Where an Early Diagnosis Is Necessary for Successful Treatment. B. F. Van Meter, Lexington, Ky.
137 Ulcerative Endocarditis. J. G. Cecil, Louisville, Ky.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 11.

1 *Removal of the Contents of the Anterior Triangle of the Neck in Cases of Malignant Disease of the Tongue. Henry T. Butlin.
2 The Thalamus. Gustav Mann, Oxford.
3 *Pathology and Treatment of Leprosy. E. R. Rost, Rangoon.
4 Second Case of Cutaneous Anthrax Successfully Treated by Sclavo's Serum Without Excision. Anthony Bowlby and F. W. Andrewes.
5 Medical Worthies of Cumberland. Henry Barnes.
6 Ergophobia. W. D. Spanton.

1. **Removal of Contents of Anterior Triangle.**—In cases of cancer of the tongue, Butlin advises the removal of the entire contents of the anterior triangle of the neck, for the same reason that the contents of the axilla are removed in a case of cancer of the breast. For several years he has performed an operation, the technic of which is as follows: A long incision is made from the mastoid process, or just below it, to the sternoclavicular joint, along the anterior border of the sternomastoid muscle. Another incision is carried from the symphysis menti across the neck to meet the first incision at about the upper border of the thyroid cartilage. These incisions divide the skin into two large triangular flaps, which should be of skin alone or of very little more than skin. The sternocleidomastoid muscle is retracted and its anterior border is cleaned so that the muscle is bare. The dissection is carried down in front of this muscle until the great vessels are exposed. The tissues between the sternomastoid and the muscles attached to the larynx are raised from below upward off the great vessels, which are left quite bare at the bottom of the wound. The muscles are cleaned of fascia and fat. The dissection is carried up along the line of the vessels, and deep down around them, in front and behind, particularly between the parotid gland and the vessels. The digastric triangle and the submental region are cleaned out thoroughly. A very clean dissection can be made in about one hour and twenty minutes. The operation is not a difficult one. Butlin advises taking up, clamping, and tying every vessel before it is divided, so as to avoid hemorrhage. After the dissection is over, the remaining vessels are tied, the wound is cleansed of blood, a long strip of gauze is thrust up beneath the jaw in the submaxillary triangle, and another is placed between the parotid gland and the vessels, and the ends of both these pieces are carried out at the lowest part of the wound. In addition, a drainage tube is inserted by the side of the gauze. On the following day, the gauze is removed, the tube being left in place. The wound is almost always healed within three weeks, and often it is well in nine or ten days. In this operation, the removal of the contents of the anterior triangle means the lymphatic glands, the submaxillary salivary glands, fat, connective tissue, a portion of the omohyoid muscle, the platysma, quantities of veins, sometimes a great piece of the internal jugular vein, if the glands are adherent to it, and sometimes a portion of the external carotid artery. Butlin states emphatically that this operation ought to be done in every case of cancer of the tongue where the disease is limited to one side of the tongue, unless there is some strong contraindication. The operation on the tongue should be performed first, and that on the neck at a subsequent time, usually at the end of a month. His results have been very satisfactory, much more so than in cases not so operated on.

3.—See THE JOURNAL, July 23, 1904, p. 286, and January 28, 1905, p. 330.

The Lancet, London.

February 11.

7 Case of Gangrenous Appendicitis, with Subphrenic Abscess. Charters J. Symonds, London.
8 *Duodenal Ulcer; with Notes of 52 Operations (51 cases). B. G. A. Moynihan.
9 *Septic Origin of Gastric and Duodenal Ulcers. W. Bruce Clarke.
10 *Rôle of an Excessive Meat Diet in the Induction of Gout. D. Chalmers Watson, Edinburgh.
11 *Carbonic Acid as a Factor in the Genesis of the Gouty State. Donald F. Shearer.
12 Rational Treatment of Fractures. J. Stafford Mellish.
13 *Pyloroplasty. Remarks on 17 Cases, with After-history for Periods Varying from Ten Years to Five Years and Three Months After Treatment. Rutherford Morison, Newcastle-on-Tyne.
14 General Gonococcal Infection. W. H. Wynn, Birmingham.
15 Hat Pin 4¾ Inches Long in Esophagus Producing a False Aneurism of the Superior Mesenteric Artery. H. D. Rolleston and T. R. C. Whipham.
16 Mandibular Processes Associated with Double Hare-lip and Cleft Palate. Walter L. Woollcombe.

8. **Duodenal Ulcer.**—From January, 1900, to September, 1904, Moynihan operated on 51 patients. There were 7 cases of perforating duodenal ulcer, with 5 recoveries; 22 operations for duodenal ulcer associated with gastric ulcer, with 1 death, and 23 operations for duodenal ulcer alone, with 1 death. All the ulcers which perforated were in the first portion of the duodenum; of the chronic ulcers, 43 were in the first portion, and 1 was in the second portion. The ulcers may be multiple, though they are usually solitary. The association of gastric and duodenal ulcers is met with more frequently than is commonly supposed. In Moynihan's series of 44 cases, there were 22 in which a gastric ulcer or ulcers were also present. Duodenal ulcer may occur at any age. The ages of Moynihan's patients in whom perforation occurred were 44, 25, 17, 17, 25, 22 and 40 years. In the remaining cases, the ages ranged from 19 to 61. Of the 51 cases, 32 were males and 19 females. The symptoms of duodenal ulcer are pain, hematemesis and melena, although some ulcers remain latent for long periods and their presence is only revealed by perforation or the occurrence of hemorrhage. The complications are: Hemorrhage; perforation, acute, subacute, and chronic; cicatricial contraction and induration, causing stenosis of the duodenum; cicatricial contraction, causing narrowing at the ampulla of Vater and obstruction to the outflow of bile and of the pancreatic juice; periduodenitis; cancer, compression of the portal vein from cicatrization of a deep ulcer; diseases of the gall bladder or bile ducts and diseases of the pancreas. Moynihan had 7 cases of perforation, 4 males and 3 females, with 2 deaths and 5 recoveries. There were 22 cases of duodenal ulcer, 14 in males and 8 in females, with 1

death. Gastric and duodenal ulcers were associated in 22 patients, 8 of whom were females and 13 males, with 1 death. The histories of all these cases are given in detail.

9. **Septic Origin of Gastric and Duodenal Ulcer.**—An instance supporting the view that oral sepsis is responsible for many gastric ulcers, is cited by Clarke. Six years after partaking freely, and for some time, of mouldy, maggoty bread and putrid water during a shipwreck, the patient had a retrocolic gastrojejunostomy performed on himself for the relief of a gastric ulcer, for which he had been treated at intervals since the time of the shipwreck.

10. **Excessive Meat Diet and Gout.**—Experiments have been carried out by Watson to determine the influence of an excessive meat diet in the induction of gout. An exclusive raw meat and water diet was fed to poultry and rats, and the results obtained showed that such a diet profoundly influences the thyroid gland. In the poultry, the diet induced a striking hypertrophy of the gland, with great increase of colloid material. In the case of the rats, a striking change was the alteration in the character of the secretion, with catarrh of the epithelial lining of the vesicles, the general appearance of the gland indicating exhaustion of its functions. Watson believes it possible that as a result of the excessive use of meat there is established in many subjects an alteration in the character of the thyroid secretion, which defect is remedied in the cases in question by the administration of thyroid gland. He has studied the effect of the administration of small doses of thyroid extract, aided by skilled balneologic methods. in two inveterate cases of chronic gout which had not been amenable to dietetic measures. In both cases, the symptoms were relieved to a striking degree, the relief, so far, having been of a fairly permanent nature.

11. **Carbonic Acid and Gout.**—Shearer is of the opinion that the unnatural excess of carbonic acid in arterial blood is the most potent factor in bringing about those changes which go to make up the gouty state.

13. **Pyloroplasty.**—A word is said in favor of pyloroplasty for stricture of the pylorus by Morison. He says the cases suitable for this operation are those with a history of long-standing stomach trouble, foul, abundant vomiting toward night, thin patients with dilated stomachs and with a palpable, movable nodule in the pylorus. The subsequent histories of the first 20 consecutive cases on which Morison performed a pyloroplasty are as follows: One patient died eighteen months after the operation from cancer of the pylorus (a malignant stricture having been mistaken for a simple one); another patient died from phthisis pulmonalis two years and four months after operation. In this case there was no recurrence of stomach symptoms. In 3 cases, the symptoms recurred, necessitating a further operation. In 2 of these, recurrence was due to stricture, and in the third it is presumed that a neurosis was at the bottom of the trouble. In 8 cases the result was perfect. In 6, symptoms, more or less troublesome, were complained of. On critical examination of these 6 cases, in one no definite organic obstruction was found at the pylorus; another patient vomits occasionally; a third has slight symptoms; the fourth complains of slight bilious attacks; the miserable condition of the fifth patient has been converted into one of comparative comfort, and the sixth patient complains of slight symptoms, but, unlike the other five cases, has not gained in weight.

Annales des Mal. Génito-urinaires, Paris.

Last indexed page 506.

17 (XXII, Nos. 14-16.) •Recherches sur les muscles du perinée et du diaphragme pelvien, sur les glandes dites de Cowper et sur le developpement de ces organes. A. Hogge (Liege).
18 Quelques cas de kystes spermatiques de l'epididyme (intravaginaux). L. Pinatelle and E. Duroux (Lyons).
19 •Bistournage (torsion) spontané, tuberculose interstitielle de l'epididyme, tuberculose du prépuce. Etude histologique. E. Dalous and E. Constantin (Toulouse).
20 (No. 17.) •Traitement des calculs de la vessie chez l'homme (stones in male bladder). J. Petit.
21 Adénomes kystiques de l'appareil urinaire. B. Motz and A. Cariani.
22 •Hematuries consécutives au cathétérisme brusque dans la rétention complète algue. A. Grelinski.
23 Traitement des prostatiques en rétention d' urine incomplete avec distension. Nicolich. See abstract 102, page 588.
24 (No. 18.) •Rôle des vaisseaux anormaux dans la pathogénie de l'hydronéphrose (rôle of abnormal vessels). F. Legueu.
25 Description d' un cystotomo-écarteur (cystotome and retractor combined). B. Guizy (Athens).
26 (No. 19.) •De la pyélonéphrite dans ses rapports avec la puerpéralité. F. Legueu.
27 •La fécondité de la femme dans 63 pays (birth rate in 63 countries). S. Gache (Buenos Ayres).
28 (No. 20.) Rupture de varicocèle. Hydro-hématocèle concomitante. M. Patel (Lyons).
29 Cas de rein en fer de cheval (horse-shoe kidney). Bruncher.
30 La perversion sexuelle et le livre de Tarnowsky. E. Bolx.
31 (No. 21.) Streptothricose des voies urinaires. Recherches expérimentales. C. Bruni (Naples).
32 Cas de prostatisme sans prostate (without enlarged prostate). Moran (Brest).
33 Table pour examens médico-chirurgicaux, voies urinaires et gynécologie. Estrabaut.

17. **Muscles of the Perineum, Etc.**—Hogge's comprehensive monograph on the anatomy, physiology and development of the muscles of the perineum, the pelvic diaphragm and Cowper's glands is profusely illustrated. His studies of sections of these parts in the fetus throw light on some of the anatomic findings.

19. **Torsion of the Spermatic Cord.**—This article states that the condition was diagnosed correctly in only 3 of the 57 cases of spontaneous torsion of the spermatic cord on record. In one case reported, the existence of chronic urethritis and of a tuberculous nodule on the prepuce masked the symptoms of the torsion. It should have been suggested, however, by the sudden onset of pain and swelling of the testicle and epididymis after violent physical effort, with vomiting, and by the subsidence and reappearance of these symptoms on several occasions. The patient was a man of 31, syphilitic, with a history of acute articular rheumatism. A complete histologic study of the excised parts concludes the article. The local tuberculous process probably had favored the torsion.

20. **Treatment of Stones in Male Bladder.**—Petit gives the details of 10 cases in which he has operated for stone in the bladder during the last 2 years. He emphasizes the importance of properly preparing the bladder for lithotrity, and of proper care afterward. He also proclaims anew the superior advantages of lithotrity. When there was merely slight irritation from the presence of stones alone, a permanent catheter was introduced the day before the operation, and the small stones were crushed and removed after lavage with a solution of antipyrin. Petit refuses now to operate in any case unless the patient can be under his direct supervision afterward. When there is considerable cystitis he reduces the inflammation with instillations of a 1-2 per cent. solution of silver nitrate, suspending it for two or three days before operating. The permanent catheter is introduced the eve of the operation, and the bladder is rinsed with antipyrin with or without laudanum. One of his patients had incontinence of urine for two days afterward. The patients in the severer cases were debilitated, elderly men, one of them a diabetic. All were permanently cured after lithotrity preceded by two weeks of treatment of the cystitis. There was suspicion of enlargement of the prostate in one instance, but all symptoms vanished after lithotrity.

22. **Hematuria Following Catheterization.**—Three cases were observed at the Necker Hospital at Paris, each of which was followed by an autopsy. The findings showed that the hematuria was due in every instance to some old, chronic lesion. No evidence could be found to sustain the assumption of hematuria from merely simple congestion of the bladder walls.

24. **Abnormal Vessels as Causal Factor in Hydronephrosis.**—Among the facts cited by Legueu is the convincing one that hydronephrosis is frequently cured by removal of some abnormal vessel. Two cases are reported illustrating the influence on the ureter of malformation of the vessels of the kidney. In one an abnormal artery passed from the aorta to the lower pole of the kidney and compressed the ureter. In the other case a supernumerary arteriole and vein passed to the lower pole of the kidney from the aorta and vena cava. In Picqué's

case an abnormal artery passed from the renal artery to the lower pole of the kidney. The supernumerary artery was resected and the kidney fastened in place. Hartmann has reported a similar case. In one of Legueu's cases the ureter had been so dented by the supernumerary artery that he did not dare to trust to its recuperative powers and he removed the kidney.

26. **Pyelonephritis in Relation to Childbirth.**—Legueu advocates mere medical treatment for the mild cases. Dilatation of the bladder will sometimes have a remarkably beneficial action even when there is infection with retention and alarming exacerbations of fever. In severe, bilateral cases interruption of the pregnancy averts complications, such as albuminuria and congestion of the lungs, and, by removing the compression on the ureters, puts an end to the infectious accidents. The pregnancy is already compromised by the persisting infection. In the unilateral cases nephrostomy is the proper treatment, not interfering with the pregnancy, unless close to term, when premature delivery is preferable.

27. **Birth Rate in 63 Countries.**—Gache tabulates various statistics in regard to the stature of men and women, age of women at puberty and at the menopause, number of children and of twins. The figures show that the birth rate in the South American countries is remarkably high. In Argentina it is 40 per 1,000 inhabitants; in Uruguay, 35; in Costa Rica, 39. Fully 86 per cent. of the married women in Argentina have children by the second year after marriage, and the families average 4.15 children.

Revue de Chirurgie, Paris.

Last indexed page 330.

34 (XXV, No. 1.) *Rhumatisme tuberculeux ankylosant, arthrites plastiques, ankylosis osseuses d'origine tuberculeuse. A. Poncet and R. Leriche.
35 Note sur les anomalies des doigts et en particulier du petit doigt valgus (little finger). C. Féré and J. Perrin.
36 *Traitement du cancer par les rayons Roentgen. Djemil Pasha (Constantinople).
37 Physiologie pathologique de l'hématome pleural. C. de Gery and G. Froin.
38 *Etude critique sur l'opération de Trendelenburg. C. Viannay.

34. **Ankylosis and Plastic Arthritis of Tubercular Origin.**—Authors do not admit ankylosis as a consequence of true acute rheumatism, and yet ankylosing arthritis—for which rheumatism is supposed to be responsible—is currently encountered by surgeons. Nothing suggests tuberculosis, but study of antecedents, the course of the affection and the later history of the case, and especially sero-diagnostic and tuberculin tests will frequently prove the process to have been of a tuberculous nature. Bérard in 1900 reported a case of complete ankylosis of the elbow which was evidently a tuberculous process, and in 1903 Poncet had occasion to observe a case of rhizomelic spondylitis which proved to be a variety of "ankylosing tuberculous rheumatism," as he called it. Froelich at Berlin and Barbier and Français at Paris have since reported cases of tuberculous rheumatism, and Poncet in this article is able to present several personally observed or unpublished cases which bring the list up to 14. The affection is an arthritis, apparently of rheumatic origin, with a tendency to plastic development and ankylosis, and tuberculous in character. It is impossible to confound the affection with an ordinary bacillary arthritis nor with ordinary chronic rheumatism. The subjects are all tuberculous, although the affection may be the first and the sole manifestation of the disease for a long time. The age is an important factor, the subjects generally being under 16, the majority between 7 and 12. The variety affecting the spine occurs principally in elderly subjects. The extremes of life are thus most subject to this tuberculous rheumatism. It is distinguished from true acute articular rheumatism by its mode of onset, by the predominance of the local over the general symptoms, by the lesser frequency, to say the least, of complications on the part of the heart, by the inefficacy of salicylic medication, and by its clinging to the joint affected. It can be differentiated from infectious pseudo-rheumatism by excluding gonorrhea, diphtheria and syphilis, and by a history of tuberculosis in the environment. The lungs should be examined and every sign of latent tuberculosis should be sought for, including Mérieux "indirect tuberculin test." (For description of this interesting test see foreign news columns, THE JOURNAL, March 4, page 726.) The general treatment for tuberculosis should be instituted early, with passive movements to prevent ankylosis, and revulsion, blisters, etc., to reduce the local congestion. Radioscopy will decide whether the ankylosis once established is bony or fibrous, and the possibility of recurrence should not be forgotten in operating. Mobilization under anesthesia and resection to a greater or less extent are indicated. During the acute stage the salicylates and antipyrin will have no effect except possibly to enfeeble the patient.

36. **Radiotherapy of Cancer.**—Djemil Pasha writes from Constantinople to report 7 cases of cancer treated with the *x*-rays, with eminently favorable results; 3 patients were cured, 3 improved, and 1 was not benefited. The latter was a case of sarcoma of the breast and it seemed to be aggravated by the treatment. Eleven other patients were treated, but failed to complete the course and are not included in the report. He urges radiotherapy as a valuable palliative in cases of advanced, deep-seated cancers, its influence on the cachexia being apparently very favorable.

38. **Attempts to Obliterate the Internal Saphena.**—Viannay traces the history of surgical intervention on the trunk of the internal saphena for the purpose of establishing a definite barrier to the superficial venous circulation. This method of treatment dates from the eighteenth century, but Trendelenburg was the first to determine the pathologic physiology of the circulation in the varicose saphena and to apply ligation systematically in treatment. He showed that the valves in the dilated vein are necessarily incompetent, as they are unable to close the lumen of the distended vessel. Every one accepts his facts, but each operator has a special technic for treating the trouble. Experiments on the cadaver, and extensive clinical experience have convinced Viannay that excision of a portion of the saphena near its entrance into the femoral vein offers a better guarantee against re-establishment of the superficial circulation than operations lower down. Excision in the region of the condyle is inevitably ineffectual. Multiple resections and total extirpation of the vein are scarcely more effectual than high resection alone. When the vein is isolated and ligated the surrounding cellular tissue should be minutely examined with the grooved sound to discover every affluent and collateral or double vein. In case of a double saphena, the two trunks approach each other as they near the femoral vein, and the second one is more readily detected at this point.

Revue de Médecine, Paris.

Last indexed XLII, page 563.

39 (XXIV, No. 1.) Sur l'absence d' hyperglycémie dans la glycosurie uranique. R. Lépine.
40 The Fear of "Catching Cold" Prepares the Soil for Tuberculosis.—De ce qu 'ou appelle "refroidissement" en rapport à la tuberculose. A. Chelmonski (Warsaw).
41 Association de fièvre scarlatine et de fièvre typhoïde. V. Le Goic. Two cases.
42 *Les accidents syphilitiques pendant le tabes. Dalous.
43 (No. 2.) *La contagiosité de l'ictère. S. Costa.
44 *Des troubles médullaires de l'artério-sclérose. La parésie spasmodique des athéromateux. A. Pic and S. Bonnamour. (Commenced in No. 1.)
45 *Classification of Facial Neuralgias by Response to Cocain.—Essai de classification de quelques névralgies faciales par les injections de cocaïne loco dolenti. H. Verger (Bordeaux). (Commenced in No. 1.)
46 (No. 3.) Cas de diabète levulosurique. R. Lépine and Boulud.
47 Rôle pathogénique de la simulation. C. Féré.
48 *Infectious Angina Pectoris.—Angine de poitrine infectieuse (septique). J. Pawinski (Warsaw).
49 *De la rétention des chlorures dans l'ascite d'origine hépatique (chlor'ds in ascites). D. Olmer and V. Audibert.
50 Le bacille de la dysenterie. L. E. Bertrand.
51 (No. 4.) *Tuberculose pulmonaire. Pathogénie, evolution. Acidose sanguine. C. Canter (Liège).
52 Epidémie de diphthérie dans un service de typhoïdiques. Niclot.
53 (No. 5.) Liver in the Tuberculous.—Du foie des tuberculeux. F. Mouisset and S. Bonnamour.
54 Traitement de la tuberculose pulmonaire par le sérum Marmorek. Jaquerod (Leysin). Favorable report.
55 *Etude de la maladie de Bence Jones. H. Bertoye (Lyons). (Commenced in No. 4.)

56 (No. 6.) Interet clinique de quelques equivalents des épileptiques. C. Féré.
57 Le mal perforant dans la paralysie générale. E. Marandon de Montyel.
58 Affection subalgue ayant presenté le syndrome "leucémie." (Recovery.) Conor.

42. **Syphilitic Manifestations in Tabes.**—Dalous has collected 21 cases of syphilid occurring in the course of tabes. The list includes 6 unpublished cases, some personally observed. Half of the entire number did not know that they had ever been infected. He thinks that this coexistence of syphilids with tabes would be found to be much more frequent if all tabetics were examined for syphilids, and if all subjects presenting syphilid were examined for incipient tabes.

43. **Contagiousness of Icterus.**—Seventy-seven soldiers were affected with epidemic icterus in some shifting battalions. The connection between the various groups of sick men was readily established, as also the spread of the disease by direct contact in the pre-icteric phase.

44. **Spasmodic Paresis with Atheroma.**—Pic and Bonnamour describe the autopsy findings in 7 out of 38 cases which had presented a syndrome characterized by spasmodic paresis of the lower limbs with exaggeration of the reflexes and with frequent coexistence of psychic derangement. The legs were weak and the subjects could walk only with short steps. This spasmodic paresis has a progressive course. The anatomic basis seems to be a diffuse or localized sclerosis of the spinal cord or interstitial myelitis, of vascular origin.

45. **Classification of Facial Neuralgias by Cocain Test.**—When the pain of neuralgia is arrested by an injection of cocain at the most painful point, the trouble is evidently in the terminals of the nerve. When the pain persists notwithstanding the injection of cocain, the trouble is of central origin, or, at least, it is not peripheral. The cocain should be injected before the paroxysm to prevent its appearance. Such an injection is liable to banish the pain permanently. Verger's clinical experiences with this cocain test in 23 patients are reviewed and the neuralgia classified according to the response to the cocain test. In facial neuralgia of peripheral origin, the pains were usually in the jaws and cheek over them. They were frequently traceable to acts like chewing, sneezing, yawning or speaking. Other differentiating points are the possibility of bringing back the pain by similar acts, also the persistence of a dull ache in a zone smaller than the area innervated by the nerve, and of tenderness on deep pressure, frequent pain on pressure of the emerging point of the nerve, frequent disturbances in the sensibility to pricks, frequent absence of spasmodic secretory symptoms, and the normal behavior of the pupil reflexes. In one of his cases the pain was arrested by cocain injected into the hypertrophied inferior turbinate. When the neuralgia is of central origin, the intervals are free from any pain or local tenderness. The pain usually radiates over a more extensive area than in peripheral neuralgia, and the attack is liable to be brought on by hot or cold drinks or by long rides in the cold. Treatment of peripheral neuralgia should be local, by modifying injections or resection, but in central neuralgia the treatment should be medical, progressively pushing the opiates and electrotherapy. Surgical intervention is the last resource, and it should attack the nerve high up instead of wasting time on peripheral, necessarily futile, operations. The record of resection of the gasserian ganglion is bad, however, 1 death to every 3 cases, and only one absolute cure to every 5 treated.

48. **Infectious Angina Pectoris.**—Pawinski refers to treatment in concluding this study of the clinical picture and pathogenesis of septicemic angina pectoris. The emunctories should be aided and the local process in the tonsils be combated. The nitrites, he thinks, are of no use in infectious angina pectoris.

49. **Retention of Chlorids in Case of Cirrhosis of Liver.**—Seven clinical cases are reported in detail to show the constant retention of chlorids in patients with ascites of hepatic origin. There was no impermeability on the part of the kidneys in these cases, but the chlorids seemed to gravitate chiefly into the peritoneal cavity. This attracted fluid to the spot. The essential factor in the liver ascites is not the retention of the chlorids or of any other substance. Remove the obstacle to the portal circulation and the ascites will vanish. Reducing the intake of salt has only a palliative influence, and merely retards the production of the effusion, but even this is a gain. Large intake of salt would hasten its production.

51. **Acid Salts in Blood in Tuberculosis.**—Canter is convinced that greater attention should be paid to the acid salts in the organic fluids in studying tuberculosis. Four years of careful research have conclusively demonstrated, in his opinion, that the normal organism with its standard phosphatic acidity is refractory to tuberculosis. Hypoacidity and deficiency in the phosphates are the predisposing causes in the pretuberculous stage. It is possible to remove this cause and to protect the subject against tuberculosis by raising the acidity and the proportion of phosphates above normal. If the patient is already infected, increasing the proportion of phosphates and raising the acidity will enable him to get rid of the tubercle bacilli and to repair the lesions if not too far advanced. The bacilli destroyed in their haunts are liable to cause more or less intoxication of the system, and this intoxication limits the curative powers and is the test of the gravity of the morbid process. When there is only a slight or moderate febrile reaction, with a normal or hypernormal acidosis, a subject with pulmonary tuberculosis can be cured easily, no matter how apparently extensive the lesions may be. Treatment to increase the acidity and phosphates should be gradual and slow, with very small doses of the phosphates or phosphoric acid, etc., gradually accustoming the organism to the struggle before it. Forced feeding is important, but it should be borne in mind that fats, starch, sugar, alcohol and organic acids produce very little if any acid and no phosphate ash. Canter gives his technic for testing the acidity, preferring a modified phenolphthalein test of the twenty-four hour urine. He states that the blood pressure, and also the secretion of hydrochloric acid, rise and fall with the acidosis. Tuberculous subjects are invariably hypoacid and hypophosphatic. By increasing the proportions above normal in this respect the organism becomes an unfavorable medium for the bacilli and they cease to proliferate. This allows the organism time to get the upper hand.

55. **Albumosuria.**—Bertoye's article is a comprehensive monograph and review of the literature on Bence Jones' albumosuria. It also gives a description of a case studied from the chemical as well as from other standpoints. He thinks that it should be regarded as a toxic-infectious disease.

Berliner klinische Wochenschrift.

59 (XLII, No. 3, January 16.) Influence of Alcohol on Susceptibility of Rabbits to Infection.—Ueber den Einfluss des Alkohols auf die Empfindlichkeit der Kaninchen für die Erzeugnisse von Bakterien. C. Fraenkel.
60 *Ueber Immunisierung gegen Tuberkulose. P. Baumgarten.
61 *Secretion of Gastric Juice in Sham and Rectal Feeding.—Die Magensaftsekretion des (gastrostomierten) Menschen bei "Scheinfütterung" und Rectalernährung. Umber.
62 *Experimentelle Untersuchungen über den Magensaft (gastric juice). A. Bickel.
63 *Action of Röntgen Rays on Ovaries.—Die Einwirkung der Röntgenstrahlen auf Ovarien. L. Halberstaedter.
64 Kasuistischer Beitrag zur therapeutischen Anwendung des Dr. Aronson-schen Antistreptokokkenserums (success in two cases). R. Klein.
65 *Nervous and Mental Affections After Electric Accidents.—Ueber Nerven- und Geisteskrankheiten nach elektrischen Unfällen. A. Eulenburg (Berlin). (Commenced in No. 2.)
66 Infektionswege bei der Lungentuberkulose. H. Beitzke.

60. **Immunization Against Tuberculosis.**—Baumgarten reports successful results of attempts to render a calf immune to virulent bovine tuberculosis to which the controls rapidly succumbed. Its serum likewise protected another calf against virulent infection.

61. **Secretion of Gastric Juice in Sham and Rectal Feeding.**—Umber devotes eight pages to a minute description of the conditions observed in the case of a man of 59 whose esophagus had gradually become impermeable from stenosis, probably malignant. A Kader fistula into the stomach was made and the patient rapidly recuperated and regained the aspect of

health with gradually increasing weight. The stomach functions were apparently normal. The esophagus became more permeable later, and the conditions of the gastric juice could be studied as food was taken by the mouth or rectum. For the fictitious feeding mouthfuls of food were very carefully chewed, but not swallowed, not even the saliva. In three minutes a continuous stream of limpid juice flowed out through the fistula. When meat alone was chewed a very concentrated gastric juice was secreted. When the patient merely rinsed his mouth several times with a mouthful of brandy, a limpid, faintly acid gastric juice commenced to flow, although in the half-hour preceding only a single drop of a slightly alkaline juice had emerged. When the subject chewed rubber or tobacco vigorously there was a copious flow of saliva, but not a drop of gastric juice appeared. The effect of fatigue was apparent in the tests, the commencement of the flow of gastric juice being retarded. The acidity of the gastric juice was found higher—up to .35 per cent.—than that cited in the text-books. The freezing-point ranged from minus .81 to minus .15 C., testifying that there is no attempt on the part of the secretory glands to establish isotonic relations with the blood. Tests of nutrient enemas showed that after rectal injection of a mixture of 200 c.c. milk, 40 gm. grape sugar, 1 yolk of egg and 2 gm. salt, secretion of a powerful gastric juice commenced in four minutes and persisted for half an hour. The total amount was 5.5 c.c.; the freezing-point minus .29 C., with a total acidity of from 30 to 35, and of free HCl, 20 to 30. This rectal gastric juice can be due only to reflex action, establishing communication between the rectal mucosa and the stomach glands. The influence of suggestion was eliminated in these tests. The fact that the secretion of acid gastric juice is the most important secretory stimulus for the pancreatic secretion—which is the one that takes exclusive charge of a rectal nutrient enema—shows the admirable purpose of this reflex phenomenon.

62. **Experimental Research on Gastric Juice.**—Bickel has been studying the same phenomena on a child with an artificial gastric fistula, and also on dogs. His conclusions are to the effect that the gastric juice does not differ materially in respect to concentration whether the diet is predominantly meat or milk. The meat gastric juice is generally richer in electrolytes, and is slightly more concentrated. Under pilocarpin dogs exhibited enhanced secretory activity in the stomach. Tests of mineral waters likewise demonstrated that certain waters are able to stimulate the specific secretion of the gastric mucosa without the co-operation of other factors. All this research tends to show that purely physical phenomena are inadequate to explain the forces at work. The human gastric mucosa can not be compared to a dead animal membrane. The gland cells reply to proper stimuli with a powerful, active response. Regardless of the concentration of the blood around or of the contents in the stomach, they pour out their concentrated or diluted secretion into the stomach cavity. The ultramicroscopic picture of human gastric juice is the same as that of dog's gastric juice. (The discussion on this article by several noted internists is given also.)

63. **Influence of Radium Rays on Rabbits' Ovaries.**—Halberstaedter exposed the ovary on one side to the Roentgen rays, and this ovary was checked in its growth in every instance. When the rabbits were killed later it was found that the exposed ovary was always less than one-half or one-third of the size of the unexposed one. The ovaries are incomparably more sensitive to the rays than the skin, and this fact must not be forgotten in *x*-ray exposures of the abdomen. Female workers in laboratories should be protected against injury from this source. The testicles are also sensitive, but much less so than the ovaries.

65. **Nervous and Mental Affections After Electric Accidents.**—Eulenburg refers to several cases of such affections, tabo-paralysis, progressive paralysis or multiple sclerosis, after electric accidents. In one instance a laborer was constantly exposed to occasional mild electric shocks in the course of his work. On two occasions the shocks were violent, and may be qualified as accidents. Since the last one he has presented the typical picture of multiple sclerosis, and the courts have granted him full industrial indemnity. The circumscribed injuries of the nerve, which are liable to result from the direct action of the electric current, would afford a local predisposition for the development of sclerotic foci. He describes a typical case of a severe mental affection following an electric accident which has many points in common with both multiple sclerosis and paralysis, and yet differs from both. The end of a wire carrying a current of 500 volts fell on the man's head. The day was warm and his scalp may have been perspiring. A chronic, degenerative, progressive, cortical encephalopathy developed. Similar accidents, with stronger currents, have been borne by others without injury. The conditions of conductibility and resistance vary in each case. A laborer in a potash works was killed by a current of only 95 volts. The ground and his clothing and hands were wet with the solution. The article is a careful study to aid in the guidance of the medical expert in suits arising from such accidents.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed XLIII, page 1826.

67 (LXXXI, Nos. 5-6.) *Purin Bodies of Feces. Study of Purin Bases of Intestinal Wall, Bile and Pancreatic Juice.—Die Purinkörper der Fäzes nebst Untersuchungen über die Purinbasen der Darmwand, der Galle und des Pankreassaftes. A. Schittenhelm (Göttingen).

68 Non-Absorption of Potassium Iodid in Stomach, and Inhibiting Influence of Morphin on Emptying of Stomach.—Resorption von Iodkalium im menschlichen und tierischen Magen und über den hemmenden Einfluss des Morphins auf die Magenentleerung. K. H. Baas (Breslau).

69 *Study of Metabolism in Case of Diabetes with Special Reference to Prognosis.—Stoffwechselbeobachtungen an einem Falle von Diabetes mellitus, mit bes. Berücksichtigung der Prognose. A. R. Mandel and G. Lusk (New York).

70 Ueber das absolute Sphygmogram und seine klinische Bedeutung, nebst kritischen Bemerkungen über einige neuere sphygmomanometrische Arbeiten. Sahli (Berne).

71 *Diagnostic Significance of Mark of Strangulation on Ascaris.—Die Strangulationsmarke beim Spulwurm in ihrer diagnostischen Bedeutung. W. Ebstein.

72 *Reply to Criticisms of Sahli Test of Stomach Functions.—Ueber die Sahlische Methode der Magenuntersuchungen. F. Seiler and H. Ziegler (Berne).

73 *Action on Blood of Lessened Atmospheric Pressure.—Wirkung des verminderten Luftdrucks auf das Blut. A. Fiessler.

74 Die rheumatische Facialis-Paralyse und ihre etiologischen Beziehungen zum Ohr (relations to ear). Stenger.

75 *Ueber congenitalen Icterus mit chronischem Milztumor (enlarged spleen). H. v. Krannhals (Riga).

67. **Purin Bodies in Feces and in the Intestinal Walls.**—One of the most interesting facts learned in Schittenhelm's researches is the large proportion of purin bases, especially adenin and guanin, but also xanthin and hypoxanthin, which he discovered in the walls of the intestines. The purin bases he also found to be a regular constituent of the pancreatic secretion. The quantity is very small, however.

69. **"Fatal Ratio" in Prognosis of Diabetes.**—This article appeared originally in THE JOURNAL, page 241 of the last volume. The ratio between dextrose and nitrogen on a meat-fat diet is the new method of prognosis proposed.

71. **Diagnostic Significance of Mark of Strangulation on Ascaris.**—The diagnosis in the case described had been icterus from occlusion of the common bile duct. An ascaris was passed in the stool, and at once the symptoms subsided. The ascaris presented a deep circular indentation at one point and traces of indentation at two other points. Ebstein regards these evidences of constriction as a sign that the worm must have been caught in some narrow passage. From the history of the case and the recovery of the patient after expulsion of the worm, he is convinced that it must have wandered into the biliary passages and obstructed the lumen of the bile duct.

72. **Sahli's Flour-Soup Test of Stomach Functions.**—The criticisms of this method of testing the stomach functions are here answered, and the invariably fine results attained with it in Sahli's clinic are emphasized. Certain points must be borne in mind, however, such as that the soup or gruel must be made appetizing; the subject must change his position regularly every five minutes, lying on back, then on left side and then sitting up, refraining from lying on the right side. An interesting feature of the monograph is the after super-

vision of persons once tested, to follow the course of their gastric affection. The findings always corroborated those of the test. Butyrometric determination of the fat is also necessary. Full details of the technic of this test soup were given in THE JOURNAL, xxxviii, page 1477, 1902.

73. **Influence on Blood of Diminished Atmospheric Pressure.**—Fiessler attributes to mechanical factors alone the apparent variations in the composition of the blood noted in the pneumatic cabinet and at high altitudes.

75. **Familial Congenital Icterus with Enlarged Spleen.**—In one family 3 brothers presented this picture, as also the mother, her sister and her mother. The father was normal. The icterus was evidently not due to obstruction to the flow of bile, but rather to overproduction. The particulars of 26 cases of congenital icterus with enlarged spleen are given in tabulated form. Those of syphilitic origin are not included in this review of the subject.

Münchener medicinische Wochenschrift.

76 (LII, No. 4, January 24.) *Behandlung der Leukämie mit Röntgen-Strahlen. O. Eisenreich (Munich).
77 *Zur Technik der Behandlung der Leukämie mit Röntgen-Strahlen. Winkler (Ibid.)
78 *Zur Röntgen-Behandlung der Leukämie. W. Wendel.
79 *Weitere Beiträge zur Behandlung der Leukämie mit Röntgenstrahlen. Schieffer.
80 Blue Glasses for Examination by Artificial Light and Description of Simple, Inexpensive Apparatus for Color Tests.—Die Verwendung blauer Gläser der Untersuchung mit künstlichen Licht nebst Beschreibung eines einfachen Apparates zur praktischen Prüfung des Farbensinns. P. Erdmann (Rostock).
81 Zincum sulfuricum oder Silber-Salze bei der Gonorrhoe-Behandlung. M. Juliusberg (Neisser's clinic, Breslau).
82 Ueber berufliche Formalin-Onychien- und-Dermatitiden (professional formalin lesions). Galewsky. See editorials, page 717.
83 *Die intravenöse Salizyl-Behandlung und ihre diagnostische Bedeutung. F. Mendel.
84 144 Zangenentbindungen (forceps deliveries). K. Heil (Darmstadt). (Concluded.)
85 Versuche zur Frage der Desinfektion bei Ankylostomiasis. H. Bruns. (Commenced in No. 3.)

76-79. **Experiences with X-Rays in Leukemia.**—Meyer and Eisenreich report 2 cases of myeloid leukemia treated with the Roentgen rays. They differ in several points from others that have been published. In the first case—the patient, a machinist of 31—the blood findings altered completely under the influence of the rays, and notable leucocytosis followed, with mast cells predominating. By the end of four months the leucocytes had fallen from 165,000 to 6,100, but then rose again to about 22,000, and later to 35,000. The general health was very much improved in both patients, the working capacity being restored, the patients gaining in weight and the proportion of red corpuscles and of hemoglobin approximating normal. The blood findings altered so materially under the influence of the rays that no one would have suspected leukemia from the blood picture. The spleen returned to normal size in the first case, but remained enlarged in the second case in which the leukemia was of longer standing and the symptoms more serious. Since suspension of the treatment the blood findings have displayed a tendency to return to the leukemic picture, so that the hope of actually curing leukemia by this means is not very promising. Exposure of the liver and spleen in healthy subjects failed to show any action of the rays on the autolytic processes of the ferments. Heineke's recently published experiments indicate that the action of the rays is more in the line of the vital processes, phagocytosis, etc.

Wendel of Marburg has collected from the literature 38 cases of leukemia treated with the *x*-rays and adds another to the list. He tabulates the details of the various cases and states that more than 90 per cent. were favorably influenced. In 2 instances no appreciable benefit was observed, and in 2 the disease rapidly progressed notwithstanding the treatment. In one instance the patient succumbed to an intercurrent disease, and in another to a rapid recurrence. In 2 others death ensued although the patients seemed to be improved at first. He remarks that no case of acute leukemia has been thus treated to date. The myeloid variety seems to afford a better prognosis than the lymphoid, although cases of the latter have been benefited. The various kinds of leucocytes appear to behave differently in response to the *x*-rays. [He includes in his tables the cases published in THE JOURNAL, with the exception of Pusey's, in THE JOURNAL of January 18 and April 12, 1902, fully a year before Senn's first publication. The early history of *x*-ray treatment of leukemia—before Senn—was given in THE JOURNAL of July 23, 1904, page 273.—ED.]

Schieffer has treated 5 cases of leukemia with the *x*-rays. The results were so fine in 3 cases that he does not hesitate to pronounce them cured, for the time being at least. One patient abandoned treatment after being materially improved by a few exposures. The fifth patient—a man of 46, almost moribund—showed great benefit at first, but the symptoms recurred after a few weeks and the patient soon died in collapse, like Stone's patient. The earlier in the disease the treatment is instituted the better the results attained. Contrary to the technic in other clinics, the spleen alone was exposed in these cases, and when treatment had to be discontinued on account of dermatitis the improvement continued to progress during these pauses. In summarizing his impressions of this method of treating leukemia, Schieffer ranks Roentgen treatment of leukemia with digitalis treatment of heart affections. There are few measures at our disposal, he says, which produce such unmistakably favorable effects, and even if only symptomatic, yet we can not afford to dispense with them.

83. **Intravenous Salicylic Medication.**—Mendel states that he has had no mishaps in 2,000 injections of a fresh mixture of 8 parts sodium salicylate to 2 parts caffein and distilled water to 50 parts. He injects 2 c.c. at intervals of from twelve hours to three days. He now has the mixture put up in fused, brown vials holding 2 c.c. each. In his last series of 500 injections some of the patients were senile, some arteriosclerotic or diabetic, their vascular systems evidently very vulnerable, yet not a single mishap occurred although some patients required as many as ten injections. He reiterates that this method banishes most rapidly and certainly all rheumatic pains and fluid exudations in diseased joints—especially in the non-febrile cases. It proved effectual after failure of all other internal and external measures, and it is free from all the disagreeable by-effects inherent in internal salicylic medication. It is particularly valuable for differentiation of rheumatic from other painful affections, although the physician must beware of suggestion in making an exploratory injection for this purpose. Several cases are related in which a puzzling rheumatic affection was disclosed by the subsidence of the symptoms under the injections, or it was excluded by their unmodified persistence. His experience with 2,000 salicylic injections and 6,000 other intravenous injections has confirmed the absolute harmlessness of the intravenous route. The injections should always be made in a vein in the arm, never in the leg.

Riforma Medica, Palermo and Naples.

Last indexed page 667.

86 (XX, No. 50.) *L'acido urico nei liquidi da versamenti (in effusions). F. Galdi and G. Appiani (Padua).
87 *Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.—Sul modo di comportarsi della secrezione pancreatica ed epatica negli animali smilzati. L. Girolama.
88 La sindrome spasmodica nelle infezioni e nelle intossicazioni. R. Massalongo.
89 (No. 51.) *Intorno alla sindrome "poliglobulia con tumore di milza" (with enlarged spleen). M. Ascoli.
90 *Sugar in Treatment of Pulmonary Phthisis.—Lo zucchero nella cura della tisichezza polmonale. R. Massalongo and G. Danio.
91 Contributo alla conoscenza della fisiopatologia della cellula pancreatica. E. Savagnone. (Commenced in No. 50.)
92 *Free Bodies in Cavities of Large Serous Membranes.—Contributo anatomico e sperimentale alla conoscenza dei corpi liberi nelle cavita delle grandi sierose. L. Tomellini. (Commenced in No. 50.)

86. **Uric Acid in Effusions.**—The authors found uric acid a common constituent of effusions. The proportion is larger in exudates than in transudates. It is generally directly proportional to the specific gravity, the total nitrogen, and the albumin content of the fluid. The proportion of uric acid was unusually high in the cerebrospinal fluid in 2 cases of tuber-

culous meningitis. The proportion is probably above the average in all exudates of tuberculous origin.

87. **Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.**—Girolamo's experiments on rabbits and dogs failed to show that extirpation of the spleen altered in any way the secretory functions of the pancreas and liver.

89. **Chronic Cyanotic Polycythemia with Enlarged Spleen.**—Ascoli's case resembles the one reported by Osler (see THE JOURNAL, xli, No. 44, page 634). The patient was a young man, with mild malarial antecedents and erysipelas. He presented the typical blood findings, enlarged spleen, cyanosis, dread, and digestive disturbances, with pigmentation of the face, and absence of dyspnea; the tuberculin test was negative. The red corpuscles numbered 7,200,000, the whites 15,000. The average proportion of leucocytes was: Polynuclear neutrophiles, 51; eosinophiles, 20; mast cells, 2; large mononuclear and transitional forms, 11, and lymphocytes, 16. The hemoglobin was 95 and iron, 110, equivalent to .69 gm. of iron to the liter of blood. He states that none of the cases on record showed such a large proportion of eosinophiles. The dilatation of the stomach and lack of hydrochloric acid may have been secondary to the modifications in the circulation of the stomach mucosa. In treatment arsenic, deprivation of iron, radiotherapy and venesection have all been tried with mediocre or negative results. Cominotti removed the spleen in his case, but the premature death of the patient deprived his experience of much value. Splenectomy should be borne in mind, especially if a tuberculous origin can not be positively excluded. No specific anatomic alterations have been found to date. In the case described the patient left the hospital after slight subjective improvement under arsenic.

90. **Sugar in Treatment of Pulmonary Phthisis.**—This communication from the hospital at Verona extols the benefit to be derived from sugar as a means of superfeeding tuberculous subjects. From 100 to 500 gm. of sugar were added to the daily diet, averaging from 5 to 12 gm. per kilogram. Even on as little as from 100 to 200 gm. a day the patients frequently gained from 16 to 30 pounds or more in two or three months. In many instances the gain was greater than the amount of sugar ingested. It was especially effectual in the febrile form or those with slight evening temperature. It was generally relished and well tolerated by the patients, and no dyspeptic disturbances or intestinal fermentations were ever noticed that could be attributed to the sugar. The taste was disguised in coffee, milk or with some bitter tincture, as preferred or not. It is indicated for all patients who are unable to take cod-liver oil, and it will be found a desirable food and remedy in many cases of tuberculosis.

92. **Free Bodies in Cavities of Large Serous Membranes.**—A free body can develop in the pericardium from detachment of some fatty lobule. Similar free bodies may be formed in the peritoneum from torsion of some tuft or appendix in the omentum, the intestinal peristalsis twisting it on its axis. Such free bodies can be induced experimentally by ligating a similar tuft of omental tissue. Tomellini observed 2 cases of such free bodies in the serous cavities, one complete and the other in process of formation.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE MEDICAL EXAMINATION FOR LIFE INSURANCE and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota. Second Edition, Revised and Enlarged, with 99 Illustrations. Cloth. Pp. 466. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

THE OPHTHALMIC YEAR-BOOK. A Digest of the Literature of Ophthalmology with Index of Publications for the Year 1903. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic. With 45 Illustrations. Cloth. Pp. 260. Denver: The Herrick Book and Stationery Co. 1904.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D., Professor of Otology, Cornell University Medical College. Illustrated by 25 Halftone and 23 Key Plates Made from Original Drawings. Half Leather. Pp. 353. Price, $6.00. Philadelphia: P. Blakiston's Son & Co. 1905.

TWENTY-EIGHTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN, Situated at the Northwest Corner of Lawrence and Huntingdon Sts., Philadelphia. For the Year Ended Sept. 30, 1904. Paper. Pp. 39. Philadelphia: Allen, Lane & Scott. 1904.

TRANSACTIONS OF THE NATIONAL ASSOCIATION OF UNITED STATES PENSION EXAMINING SURGEONS. Third Annual Meeting, Atlantic City, N. J., June 6 and 7, 1904. Vol. II. Cloth. Pp. 187. Published by the Association, Rochester, N. Y. 1904.

THE MEDICAL MISSIONARY SOCIETY IN CHINA. Annual Report for the Year 1904, with Illustrations. Paper. Pp. 37. Printed by the China Baptist Publication Society, Canton, China.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY FOR THE YEAR ENDING DECEMBER 31, 1904. Vol. XII. Paper. Pp. 205. Wilkesbarre: The E. B. Yordy Co. 1904.

NEW PATENTS.

Recent patents of interest to physicians, etc.:

779833. Medicated sweetmeat. Maylean Bjornstad and J. Stacy, Auckland, New Zealand.
779637. Sterilizing organic substances. Carl C. L. G. Budde, Copenhagen, Denmark.
779527. Wax emulsion and producing same. Herbert H. Church, Bellows Falls, Vt.
779591. Eye shield. Albert A. Fairbanks, Atlanta, Ga.
779777. Producing silver emulsions. Johannes Gaedicke, Berlin, Germany.
779705. Treating alkaline solutions of chromate of soda. Wm. T. Gibbs, Buckingham, Canada.
779998. Making hydrochloric acid. Wm. T. Gibbs, Buckingham, Canada.
779498. Sterilizing apparatus. Alexander T. Pfeiff, Stockholm, Sweden.
779885. Speculum. Charles F. Spangler, Kane, Pa.
779749. Antiseptic feeding bottle. Charles W. Tinling, Hamilton, Canada.
780025. Supporting frame for use with slipper bedpans. Evelyn A. Conyers, Melbourne, Victoria, Australia.
780415. Apparatus for expressing juice from meat. Ida C. Eavenson, Philadelphia, Pa.
780278. Collapsible stretcher. Kaspar Freuler, Zurich, Switzerland.
780424. Inhaler. Theodor Heryng, Warsaw, Russia.
780226. Castor oil praline. Leonard Pink, Berlin, Germany.
780077. Medical vaporizer. James E. Van Ness, Chicago.
780699. Ear trumpet. Alvin W. Aylsworth, Fostoria, Ohio.
780598. Catamenial sack. Mary E. Coleman and M. Jarmulowsky, New York.
780551. Hot-water bottle. Benjamin J. Craggy, Manchester, N. H.
780710. Nozzle for syringes. Henry Dickinson, Flushing, N. Y.
780645. Artificial leg. Gustaf A. Erickson, Minneapolis, Minn.
780563. Eye irrigator. Frank E. Girard, Toledo, Ohio.
780948. Opticians' frame gage. John H. Hales, Newport News, Va.
780619. Morphin compound and making same. Robert Pschorr, Berlin, Germany.
780831. Shoulder brace and support. Annie Stinton, North Williamstown, Victoria, Australia.
781328. Invalid and operating table. Egbert B. Brown, Maywood, Ill.
780987. Bedpan. George E. Gorham, Albany, N. Y.
780988. Fracture apparatus. George E. Gorham, Albany, N. Y.
781516. Respirator and inhaler. George N. Guthrie, Jr., Cookville, Tenn.
781142. Woven surgical bandage. Theodore W. Hanrath, Chicago.
781283. Hypodermic power syringe. Frank A. Higgins, Bellevue, Ohio.
781428. Inhaler, injector and medicator. Sheridan J. and L. A. Hutchins, St. Paul, Minn.
781544. Combination shoulder and body brace with attachments. Tillman E. McMurtry, Chicago.
781363. Making medicaments containing plant juice. Marie Ritter, Breslau, Germany.
781555. Movement cure device. Alfred B. Schanz, Attica, Ind.
781627. Lung-testing machine. Joseph D. Wolf, Beaver, Pa.
782108. Apparatus for administering anesthetics. Raymond C. Coburn, Upper Sandusky, Ohio.
781818. Disinfecting apparatus. Eugene Fournier, Paris, France.
782021. Sterilizing water by means of ozonized air. Hjalmar Friberg, Charlottenberg, Germany.
781683. Combined apparatus for exercising and massaging by friction. George H. Shepherd, Paris, France.
781860. Pasteurizing apparatus. Walter B. Wright, Chicago.
782433. Temperature indicating spoon. Harrison E. Ashley, New Bedford, Mass.
782723. Hypodermic syringe. Milton Campbell, Philadelphia.
782747. Inhaling device. Arthur Goldstaub, Hamburg, Germany.
782663. Massage apparatus. Johannes C. Johansen, Copenhagen, Denmark.
782400. Apparatus for hygienic and therapeutical purposes. Jean M. A. Lacome, New York.
782800. Hypodermic syringe. Frederik W. Steuer, Plainfield, N. J.
782303. Sterilizing apparatus. Wm. J. Winchel and J. H. Whaley, Rome, N. Y.